ANIMATION Special—pp. 22-41

AMIGA WORLD

October 1991
U.S.A. $3.95
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An IDG Communications Publication

Yes! The Mouse IS Mightier Than The Pen...

ANIMATION
Amiga Style!

- Pro Tips & Tricks
- How-To Projects
  • DPaint III • Imagine
- "Morphing" Magic

Plus!

- Multimedia Tips: Accent Your Audio!
- 24-Bit Painting
- Single-Frame Recording—For Less!
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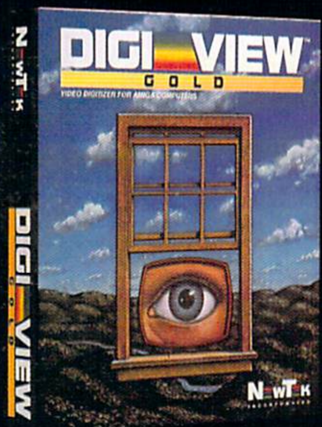


"Mighty Mouse" goes Amiga—p. 115

FROM THE CREATORS OF THE VIDEO TOASTER

THE AMIGA MULTI-MEDIA TASK FORCE

DIGI•VIEW GOLD



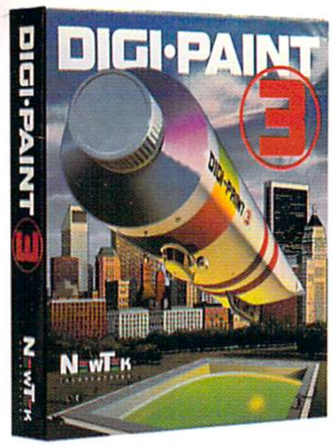
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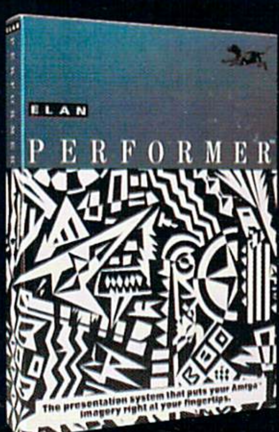


The Most Successful HAM Paint Program Of All Time

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The Hottest Presentation Graphics Tool Ever For The Amiga

Before Elan Design joined the NewTek Video Toaster design team they created Elan Performer 2.0. Now available exclusively from NewTek, Performer brings high-end presentation power to the Amiga. Performer is the power tool Digi-View and Digi-Paint users have been waiting for. Now you can easily combine your images in presentations that spring to life with animation and excitement. Whether you're doing presentations, video, multi-media or animation, Performer will make your graphics the star of the show. AmigaWorld says, *"Elan Performer is a flawless performer."*

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Digi-View Gold, Digi-Paint 3, and Elan Performer are available now at your local Amiga dealer **or call 1-800-843-8934** or 913-354-1146.

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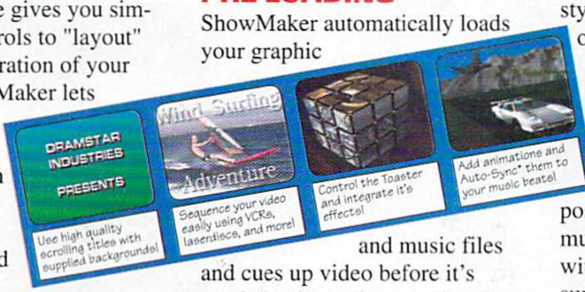
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***ShowMaker™ is the first** package that turns your Amiga into a complete desktop video solution, providing sequencing of video, animation, and Toaster effects together with mattes*, wipes, titling, and multi-channel soundtracks. In short, ShowMaker lets you quickly and easily assemble full video productions on your Amiga.*



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Integrate video, animations, music, effects, and more with the ease of the mouse. ShowMaker's unique Time-Line Production Interface gives you simple graphic controls to "layout" the order and duration of your elements. ShowMaker lets you assemble your whole production, from animations and video to Toaster effects and sound effects.

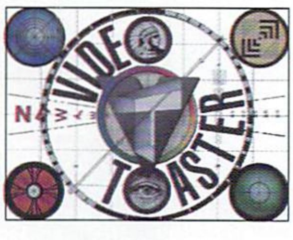


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ShowMaker gives you control over genlocks, videodisc players, and VCRs. Just tell ShowMaker when to cut in your video, and it will automatically search to the correct position and cut or fade in the genlocked signal at exactly the right time.* Video sequencing has never been this easy!

TOASTER POWER

If you have a Video Toaster, you need ShowMaker. Only with ShowMaker can you sequence a series of Toaster effects directly into your production, making for spectacular video. And ShowMaker makes it easy!



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ShowMaker automatically loads your graphic and music files and cues up video before it's needed, without interrupting the playback. This means you can create long running productions, limited by disk space, not RAM.

BUILT-IN TITLING

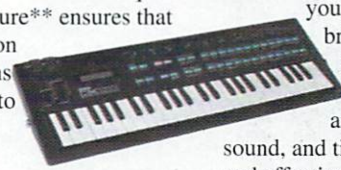
ShowMaker's built-in video titler gives you dynamic scrolling titles. And with ShowMaker you can run titles over video and animation, even adding special effects like drop shadow and outline! ShowMaker also includes a collection of high quality video fonts and exciting backgrounds.

EXCITING TRANSITIONS

ShowMaker features dozens of built-in transitions, including wipes, fades, and dissolves. You can create exciting professional-style transitions with just a click of the mouse.

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Add dynamic stereo soundtracks just as easily. Simply position segments on any of the music or sound effects tracks with the mouse. ShowMaker supports MIDI output, MIDI files, SMUS files, and IFF samples. And ShowMaker's unique auto-sync feature** ensures that your production always remains synchronized to the music!



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With ShowMaker you can preview and refine your production at any time during its development. Then quickly and easily adjust, cut, copy, and paste tracks until your show is perfect. ShowMaker will even generate storyboards and cue sheets to help you visualize and fine tune your production.

IT'S A WRAP!

Hit the play button and ShowMaker plays back your production in real time, automatically synchronizing the video, animation, soundtrack, and titling. A true multimedia presentation. Then record your production to videotape for a first generation Master Tape!



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Business, education, presentation or entertainment. Whatever your message, video brings it to life. There is no easier way to combine graphics, animation, video, sound, and titling into exciting and effective productions. ShowMaker turns your Amiga into a video production system. Join the video revolution by seeing your dealer or calling us at **1-416-602-4000**.

By the way, this entire ad was created with Professional Page 2.0 desktop publishing software, another high quality Gold Disk product.

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SEE THE POWER!

Drop by your local dealer and ask to see our new ShowMaker demonstration tape "Multimedia Muscle", produced entirely with ShowMaker!

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VOLUME 7, NUMBER 10 OCTOBER 1991

CONTENTS

FEATURES

ARTICLES

COLUMNS



Like our cover (inset above) suggests, the Amiga is a "mighty" fine machine for doing animation. This month's features focus on a wide variety of animation tips and techniques—both 2-D and 3-D—culled from some of the best Amiga animators in the business. Whether you're an old hand or just starting out, whether you use animation for video/multimedia presentations or just do it for fun, we think you'll find something here to "animate" your imagination. And, by the way, the creator of "Mighty Mouse" (who also did the illustration for the cover) has been using an Amiga to create some of the recent comic-book adventures of MM. For a profile of Ernie Colón, see page 115.

DEPARTMENTS

REVIEWS

GAMES

COVER ILLUSTRATION BY ERNIE COLÓN

AmigaWorld (ISSN 0883-2390) is an independent journal not connected with Commodore Business Machines, Inc. *AmigaWorld* is published monthly by TechMedia Publishing, Inc., an IDG Company, 80 Elm St., Peterborough, NH 03458. U.S. subscription rate is $29.97, one year; $46.00, two years; $64.00, three years. Canada $38.97 (U.S. funds), one year only. Mexico $38.97, Foreign Surface $49.97, Foreign Airmail $84.97 (prepayment is required on Foreign Surface and Airmail subscriptions in U.S. funds drawn on U.S. bank). All foreign rates are one-year only. Second-class postage paid at Peterborough, NH, and at additional mailing offices. Phone: 603-924-0100. **Postmaster:** Send address changes to *AmigaWorld*, Subscription Services, PO Box 58804, Boulder, CO 80322-8804. Nationally distributed by Kable News Co., *AmigaWorld* makes every effort to assure the accuracy of articles, listings and circuits published in the magazine. *AmigaWorld* assumes no responsibility for damages due to errors or omissions.

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GVP's New Series II™ A500HD8+ Puts A2000® Computing Power and Punch into Your Amiga 500

IMPACT
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By now you know that every Amiga 500 comes with that special built-in program called "Wait". Wait while your A500® loads software. Wait while you save files. Wait while you change disks. *It doesn't have to be that way!*

GVP's Series II A500HD8+ Takes Off the "WAIT"

GVP's Series II A500HD8+ 40-105MB Hard Drives work like the world's fastest runners to take the "Wait" off and to get your Amiga 500 racing along at data transfer speeds of up to 52 times faster than floppy disk drives. But getting rid of the "Wait" is just the beginning...

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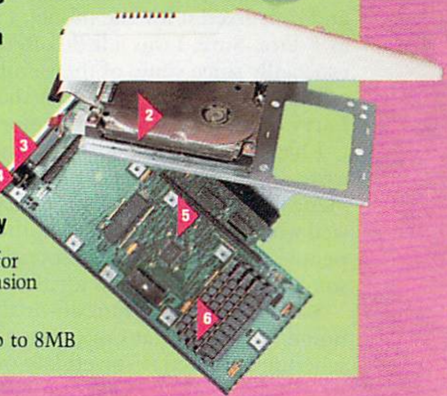
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CHIEF CONCERNS

Behind the users' group scene.

I'VE GOT A BOX under the table in my office that overflows with newsletters from users' groups around the country, and I've read every one. Some are pretty sparse, focusing on minutes and dues and such. Others, though, have an editorial bite that would make Pat Buchanan and Ed Anger look like angels.

This level of literacy is one of the things that is different about the Amiga market. Many of you combine great creative skills with emotion, and the result is plenty powerful. It's not just in the newsletters, but also in the letters we receive from individuals. Just read The Last Word each month and see for yourself.

Take Larry Lack, for instance. This Jerry Pournelle/John Dvorak (two famous computer columnists who don't write for *AmigaWorld*) quasi-clone writes a great column called Digital Dungeon for *The Amiga Users of the Heartland*, in Omaha, Nebraska. Now Larry never knew I read his newsletters—until, that is, he gave *AmigaWorld*, and me in particular, both barrels.

Larry blasted us about an article that had an error—which was the vendor's fault—and levelled a scurrilous attack on me for my sudden discovery of the Amiga, saying I knew nothing about it and only liked it for the money I made as Editor. Sure, I was a little offended, especially since some of the points were off target. But I have to admit that Larry did it with style and humor.

I had to call. Heck, any guy who can write about "Personal Computer Hygiene" and the "I-Vana Trump Card" is well worth talking to. Besides, the people who are the harshest critics sometimes have the best ideas.

So I tried to track him down at home. I tried him at work. Since our schedules clashed, I stayed late one night and nailed him as he walked in the door.

"Hey. What's all this rotten stuff you're writing about us, Larry?" I asked.

"You mean you read our newsletter!"

"I read 'em all, Larry."

"Oh."

For the next ten minutes, I laid out my side of the story, with Larry taking copious notes. For the next twenty minutes, we talked about everything else, Commodore, the machine, the magazine, his column.

Minds met. Friendship began. And now the first thing I do when I get the Heartland newsletter is turn to Digital Dungeon.

People like Larry Lack are the soul of the Amiga. They take the time to help organize a group, keep a newsletter going, and give a hand to their fellow users.

These groups get involved in the market by voicing concerns to Commodore, keeping mainstream computer publications aware of the Amiga's existence, and keeping us Amiga magazines on our toes.

Ding Dong, You're Wrong

There are also guys like Paul Metheney, former editor of *The Miami Amigos* newsletter. I got a note from Paul after another publication launched a vicious (we don't mind that) and inaccurate (now that really bugs us!) attack on *AmigaWorld* because of our aggressive coverage of new products.

To his tremendous credit, Metheney churned out a very reasonable defense of *AmigaWorld*'s attempts to cover the big products first. And it was really well written. So I called him, too.

Unfortunately, the publishing crew in question hasn't so far had spine enough to publish a correction, let alone any of the many letters from users complaining about the attack. As a result, Paul's letter may never get published.

Anyhow, I happened to pick up Metheney's latest newsletter, and there was a quite articulate, funny, and honest description of our conversation. I'd better be careful with guys like Lack and Metheney around. Sooner or later, they'll come after my job.

After I had written the first few paragraphs of this column, I got a call from US Army Sergeant Marney, who is stationed in Garlstedt, Germany. We talked about a lot of things, such as how he used his Amiga to create presentations about the Gulf War for the 5000 or so concerned relatives of those serving, and how he uses Russian fonts from Classic Concepts in his work as a Russian linguist.

But mostly we talked about his users' group, which was kinda torn apart when so many soldiers were moved to Saudi Arabia. Marney is now trying to get the group back together, so if you're near Garlstedt, call him up.

Users' groups, if properly managed and motivated, can do members a world of good. They provide access to good, cheap public-domain software. They can wangle deals out of a local dealer, or even out of Commodore. They attract good speakers and give great demos. They act as an informal flea market. They solve problems. They keep users abreast of the latest news and gossip. They provide a social bond between users. And they help keep Amiga users off the street.

Maybe that's why some 30% of *AmigaWorld* readers belong to users' groups. If you have ideas about how such groups can be improved, send 'em our way, and we'll do our best to pass them along to that active, committed 30%. ■



WHAT HAS 16M COLORS, 24-BIT FRAME BUFFER +GENLOCK+FRAMEGRABBER+FLICKER-ELIMINATOR +PIP+VIDEO TITLER+3D MODELLING SYSTEM?



If you're into video, IMPACT VISION-24 is truly a dream come true for your A3000 or A2000. It is the first multi-function peripheral specifically designed for the A3000's video expansion slot. With the optional A2000 genlock slot adaptor kit, it also perfectly complements and enhances the A2000. Check out these features, all packed on a single Amiga® expansion board!

Introducing the IMPACT VISION 24™ from GVP

The All-In-One Video Peripheral for the A3000 and A2000



▶ **Separate Composite and Component Video (RGB+Sync) Genlocks.** RGB genlock operates in the digital domain, for digitally perfect production studio quality mixing: no color bleeding, no ghosting, no artifacts . . .!

▶ **1.5MB Frame Buffer.** Display 24-bit, 16 million color images on your Amiga monitor. On a multi-sync monitor, you can even display 16 million color images in non-interlaced mode!

▶ **Realtime Framegrabber/Digitizer.** Freeze, grab and store (in standard 4096 or 16 million color IFF format) any frame from a "live" incoming RGB video source. Optional "RGB splitter" required to grab incoming composite or S-VHS video.

▶ **Flicker-Eliminator.** Duplicates and enhances the A3000's display enhancer circuitry. It even de-interlaces live external video! A must for any A2000 owner. Ask about our A2000 "genlock slot trade-up" program (in case your genlock slot is already used by something less exciting!)



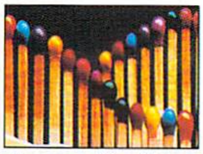
▶ **Simultaneous Component Video (RGB) Out, Composite Video Out and S-VHS Video Out.** Now, anything you can see on your Amiga monitor can be recorded on video tape, including animations, ray-traced 24-bit images and more!

▶ **Picture-In-Picture (PIP) Display.** Freeze, resize, rescale and/or reposition live incoming RGB video just like any workbench window at the double click of a mouse or the pressing of a "hot key". With a multi-sync all this can even be in rock steady de-interlaced mode. Unique "reverse-PIP" feature, even allows you to place a fully functional Amiga workbench (or other application) screen as a SCALE-ABLE (shrunk down!) and re-positionable window over full-screen live video.

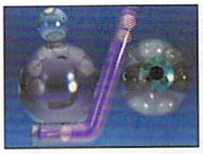
▶ To make sure you can take full and immediate advantage of every feature of your new *Impact Vision 24* video-station, we even include the following software with every unit:

- **Caligari-IV24.** An exclusive version of the leading broadcast quality, 3-D modelling and rendering program. Use your imagination to model 3D, 16 million color, scenes. Use your digitized video images as textures to wrap around any object! The mind is the limit!
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- **MACROPAINT-IV24.** A 2D, 16 million color paint program that lets you have fun creating or manipulating any 16 million color, 24-bit image.





- **Control Panel.** Provides full software control over all Impact Vision-24's numerous features. Use your mouse or simply press a (configurable) "hot key" to activate any feature.





At GVP, we wanted to make a major impact on the use of the A3000/2000 by professional video enthusiasts. With the Impact Vision-24 we have!

For more information on how the **Impact Vision 24** can have a major impact on your video productions, call us at **215-337-8770.**

IMPACT VISION 24



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OVERSCAN

News, New Products and Networks

At Cal Arts, Computer Means Amiga

Where do you go to learn Disney-style character animation? To the school founded by the Disney family, of course: the California Institute of the Arts. Located just outside of Los Angeles, Cal Arts' Character Animation Department uses only Amigas to teach animation. Several successful animators have put their careers on hold to brush up at Cal Arts. It is generally considered the finest school in the world to learn character animation, and the Amiga has become a pivotal part of the curriculum there.

While the 165 students in the program also learn traditional aniamtion techniques, they are required to take a computer class in which they use DeluxePaint III (Electronic Arts) and Disney Animation Studio (Walt Disney Computer Software). From there they can move on to



Student Director Sean Schur (left) oversees Cal Arts' animation lab from the back of the room.

Continued on p. 14.



OVERHEARD

WordPerfect Corporation is now doing feasibility studies to determine whether enough people are clamoring for WordPerfect Amiga version 5 to warrant its release. According to *AmigaWorld* reader Diane Carter, the company encourages interested folks to call or write with requests for the multiplatform word processor (1555 N. Technology Way, Orem, UT 84057 801/225-5000). If WordPerfect gets enough response, you will see the update.

Little Big Show

ORLANDO—"It's not fair to compare a market like Orlando to that of New York or LA," said one exhibitor. And she was right. Summer AmiEXPO in Orlando was about half the size of the spring show in New York City. But given the location, the state of the economy, and the increasing number of shows Amiga developers must consider (Siggraph began just days later), it was not bad. Many of those who doubted that good things come in small packages were pleasantly surprised. Exhibitors treated the enthusiastic attendees to some interesting displays and announcements.

As with the last EXPO, this show offered no games, but instead a good amount of video gear and software. ***JVC*** (RS# 120) showed off a range of cameras and equipment, and ***IDEN*** (RS# 121) demonstrated its line of TBCs. The biggest news of the show was the 24-bit graphic board from ***GVP*** (RS# 122). The A3000/A2000 **Impact Vision 24** board ($2199), which occupies both a Zorro II slot and the video slot, offers PIP (Picture-in-Picture) capabilities. This lets you display video in a resizable, movable window on the Workbench. The hardware will be bundled with a version of ***Octree***'s (RS# 123) 3D modeler/renderer **Caligari** and ***GVP***'s **MacroPaint** and **Scala** programs. Another couple of surprises from GVP came in the form of music products. Representatives demonstrated a new 8-bit sound sampler (Digital Sound Studio, $125) and spoke of a 12-bit sound board that's slated to sell for $399.

Drawing a crowd disproportionate to its booth size was ***Blue Ribbon SoundWorks*** (RS# 124). Professional guitarist Mike Torres provided both entertainment and a demonstration of **Bars&Pipes Professional**. Blue Ribbon worked with a prototype of ***SunRize***'s (RS# 125) 12-bit sound sampler (which promises direct-to-disk recording) and Blue Ribbon's own **SunSet** supporting software. The company also announced **Jam** ($99). Due out before the holidays, this composition software is for people who "know nothing about music and can't carry a tune in a bucket." It is designed to easily integrate music into multimedia productions.

Next door in the ***Axiom*** (RS# 126) booth was **Pixel 3D 2.0**, an upgrade to the popular 2-D bitmap to 3-D object converter. This new version supports more 3-D formats and has a wealth of new features. Programmers were also there demonstrating the 2.0 version of **3D Professional** (from ***Progressive Peripherals & Software*** (RS# 127) that's scheduled for fall release ($399, or $100 for registered owners of the earlier version). Interestingly, it was running on an A3000 with Progressive Peripherals' **68040 card** and the **Rembrandt** high-resolution 24-bit card. 3D Pro now provides new animation features, full-point vertex editing, extensive texture mapping, and Boolean object functions. 3D Professional retains support for X-Specs 3D, the liquid-crystal stereoscopic glasses released three years ago by Haitex.

In case you ever wondered what happened to ***Haitex*** (RS# 128), it is back with **X-Specs TV**, which allows you to view 3-D images from videotape (using X-Specs, of course).

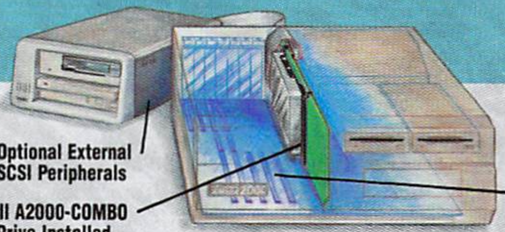
Continued on p. 14.

For information about the vendors of products, see "Manufacturers'/Distributors Addresses" list on p. 118.

MEET THE
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IMPACT Series II



This *single* GVP SERIES II A2000-COMBO board gives you more power, performance and control over your Amiga® system than any 4 other boards out there.

You want to expand your Amiga's memory?...the SERIES II A2000-COMBO does it and does it big.

You want to make your Amiga faster than a speeding bullet?...the SERIES II A2000-COMBO does that too.

You want to use your Amiga with virtually every and any SCSI device on the market—from CD-ROM drives, to Magneto-Optical and tape-based storage devices?...the SERIES II A2000-COMBO does it all.

You want all the storage capacity of a 3.5", 500MB hard drive on a single card?...Yep—It's an option.

You want to save lots of time with your desktop publishing, ray-tracing, rendering and animation programs?...Nothing's faster than the SERIES II A2000-COMBO.

You want to use your Amiga as a special effects generator for broadcast quality videos?...the SERIES II A2000-COMBO perfectly complements New Tek's Video Toaster™ special effects system.

Plus, when you install the SERIES II A2000-COMBO board directly into your Amiga's CPU accelerator slot, you still have all 5 of your original expansion slots open and free for other uses.

If that doesn't make the SERIES II A2000-COMBO the ***Chairman of the Boards***, we don't know what does.

For more information on how you can put the Chairman of the Boards—SERIES II A2000 COMBO—to work for you, call **215-337-8770.**

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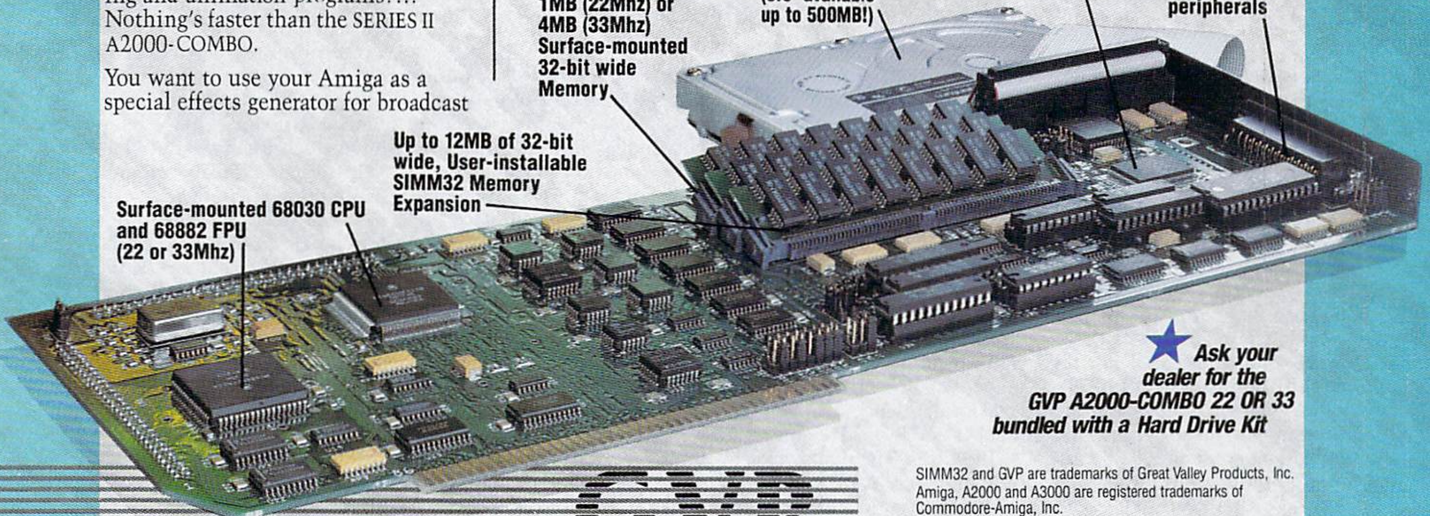
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Continuing with its popular Power Up program, Commodore is offering cost savings on Amiga 500 bundles. Until October 31, owners of Commodore 16, 64, 64SX, 128, Plus/4, PET and VIC computers—as well as students and educators—can upgrade to the one-megabyte A500P computer/software bundle for up to $300 off the usual price of $799, or choose an A500S assemblage for $200 off the $599 suggested retail.

Several documents can serve as "coupons" at Amiga dealerships. For Commodore owners, the CPU serial number of your qualifying computer written onto its original manual cover is your ticket to savings. Students need to present either a high-school diploma, a college ID card, or college acceptance letter. Educators must show a school ID or a business card to receive the discount. For more information on the program, call 800/66-AMIGA or contact an authorized dealer.

—BG

MUSICAL SCORES

Jagged, bitmapped printouts are what you get from Electronic Arts' Deluxe Music Construction Set (DMCS). Unless you have **Copyist Companion** ($30, *NerveWare*), that is. Copyist Companion converts DMCS files into a format compatible with Dr. T's musical-notation program The Copyist, which delivers high-resolution, professional-quality output. (RS# 105.)

In case that won't help and you are just not happy with any of your music software, consider Blue Ribbon SoundWorks' upgrade offer. Until December 15, you can trade in any Amiga music program for Bars&Pipes or Bars&Pipes Professional—for just $99 or $199, respectively. Send in your payment plus the manual cover of the program you would like to trade, or contact Blue Ribbon customer service for more information. (RS# 106.)

—BG

THE MEDIATOR

Will a PC/AT keyboard work with your Amiga? Now it will, with The **=KB- TALKER=** ($69.95) by ***Co-Tronics Engineering***. This device promises to work with all IBM PC/AT-compatible keyboards (not XT-types), and all Amigas—although the A500 requires a special adapter cable and a modification of the case. The =KB- TALKER= is compatible with bar-code/UPC-reading keyboards, such as the Cherry G80-1600 keyboard and bar-code reader. It provides full "Num Lock" support, requires no changes or additions to software and no additional power. Purchasers are entitled to free uprades for the first year. (RS# 102.)

—DH ►



ON-LINE SCAN

By Tim Walsh

Sometime in late June, American PeopleLink, the network that knowledgeable Amiga enthusiasts had come to revere for both its files and helpful social atmosphere, quietly succumbed to mysterious woes. Unfortunately, one of the problems with the demise of Plink was that there was little warning. Despite having logged on daily, I wouldn't have guessed that anything was amiss had I not received the inside word in advance from the sysops. After the shutdown occurred, a call to the local Tymnet number for PLink would produce a forlorn screen message that read "PCI -call cleared (c 19,d 81): local procedure error."

Without missing a beat, many of the frequent attendees, sysops, and personalities of PLink's AmigaZone swiftly moved to the network system called Portal, headquartered in Cupertino, California. Lead by PLink's former AmigaZone Chairman Harv Laser, these PLinkers went to work like crazed roustabouts and in a remarkably short time, installed a multitude of Amiga files, arranged conferences, scheduled events, and generally made the Portal environment a new home for displaced PLinkers.

Signing on to Portal has been made easy, too. If you're a former PLinker interested in checking out Portal, you can sign up on-line. Just use your modem-equipped Amiga to call your local Telenet or Sprintnet number and instead of entering "C PLINK" at the final connect prompt, enter "C PORTAL".

Once you've logged on as a new member, enter "GO REFUGEE" to join the other displaced PLinkers. Be forewarned, though, that Portal differs in appearance from most other national networks. Some long-time PLink Amiga users are not nearly as nice in their descriptions of Portal, either. Coddled by PLink's forgiving and relatively effortless user interface, complaints are commonplace within Portal's Amiga message boards. Personally, I disagree with the faultfinders, including those of stature and expertise in the Amiga community, who have found Portal cumbersome to navigate. Sure, a few more keystrokes are needed to maneuver about the system, but after a dozen or so sessions, I have committed most instructions to memory. Looking at Portal more as a BBS and less as a network, experienced telecommunication users will know it's a matter of programming some function keys, setting up some macros, and changing settings on Portal to a shortened command line. Admittedly, it takes time to become accustomed to unusual screen prompts containing such terms as edit, logout, add_article, and unsubscribe, but you can get explanations for these and other mystifying commands simply by typing "HELP BEGINNER" or "HELP" followed by the command name in question. Also, all inductees receive a New User's Guide from Portal, which goes a long way in helping beginners to comprehend the system.

One of the first Amiga files I encourage everyone to retrieve from the Amiga file area is called HOWTOPORTAL.LZH, written by Rick Plavnicky. Although he is not a Portal employee, Plavnicky has taken the time to write an 11-page reference document designed to help former PLinkers through the transition period. Be certain to check out the other Amiga files on Portal. It's the only national network that stocks the entire Fred Fish Disk collection of freely-distributable Amiga software.

If you're interested in a Portal account, here is the necessary information:

Portal Communications Co.
10385 Cherry Tree Lane
Cupertino, CA 95014
Voice: 408/973-9111
Data: 408/725-0561

On an aside, a Federal Communications Commission form letter I recently received sets to rest the question of a modem-tax proposal that was posted on GEnie and mentioned in the July isssue (p. 10). According to the letter, no such proposal exists.

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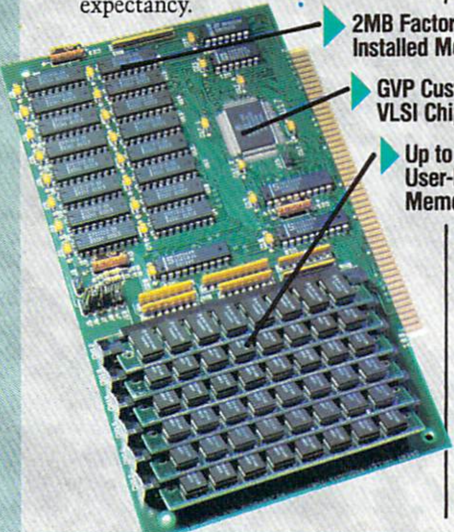
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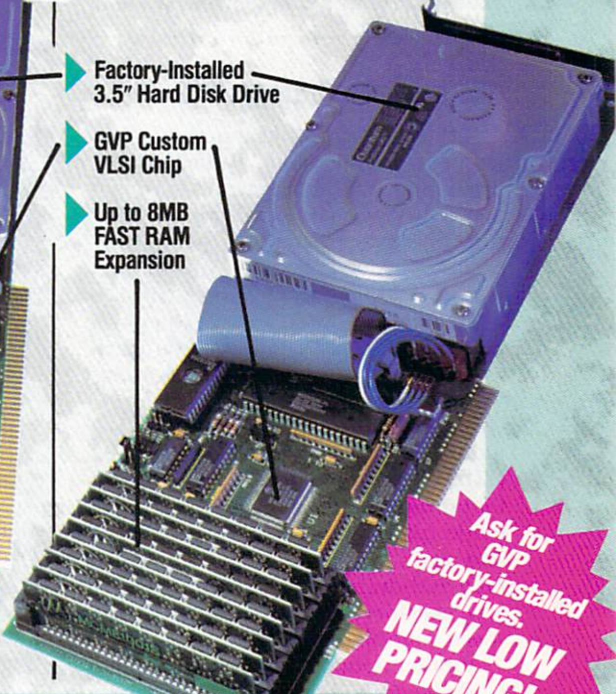


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Animation 101

For those interested in taking a course in real-time Amiga animation for video, ***Myriad Visual Adventures*** offers **Animation 101** ($35). The one-hour VHS tape is a two-part course for beginners. It covers animation and motion study, and has a brief section that aims to clear up some of the confusion about video editing. (Part 1 won second place the Industrial Video category at the '91 New York AmiEXPO). The animated sequences on the tape were recorded in real time using basic software and hardware. (RS# 101.)

—*DH*



Put one foot in front of the other—with some help from Animation 101.

Commodore Goes To Washington

WASHINGTON, DC—Imagine how exciting history would be if you could actually witness the events that shaped our world. While technology does not currenty support time travel, you can see the next best thing to being there—at DC's Smithsonian Institute.

Commodore teamed up with Pioneer Electronics and Scholastic Books to donate three systems for presenting "Visions of American History: Struggles for Justice Volume 1: African American, Native American, Latino," an interactive exhibit. Scholastic designed the courseware for this educational extravaganza to run on an AmigaVision-equipped A2500/30 connected to a Pioneer laser-disc player.

The exhibit draws you into the material with historical footage, simulations, maps, charts, biographies, and time lines in an attempt to make history lessons as close to personal experience as possible. According to Commodore's Director of Educational Marketing Paul Calkin, Scholastic hopes that the course will give students not only a more accurate account of history, but also a feel for the sacrifices made by the groundbreakers in our past.

—*JJ*

Mouse Alternatives

Perhaps you use your mouse hour after hour, day after day. Perhaps you're tired of moving your arm and wrist into precarious positions, and are suffering from finger cramps trying to get the precision you need. Perhaps you haven't heard of **Mouse-trak**. Mouse-trak, by ***ITAC Systems***, is what you get when you place a two-inch phenolic ball on hardened stainless steel shafts and bearings for precision, and add a wrist pad for cushioning the hand. It comes in two models, the MQ2 ($159) and the MQ3 ($169). This stationary device, designed for precision and comfort, offers a toggle mode (press to start, move the cursor, and press again to release) to reduce hold-and-drag finger cramps. It also offers user-definable-keys, and cursor-speed control. (RS# 103.)

Another option for mouse opponents is ***TriMedia***'s **Amiga Wiz** digitizing tablet ($249). The Wiz hardware, manufactured by Calcomp, offers a 7.5×7.5-inch active area and 1000 lines-per-inch resolution. A two-button pen comes with the package, but if you need a more precise method of tracing, you can opt for Calcomp's six-button mouse-style cursor with cross-hairs ($75). TriMedia provides a five-year warranty and control software for all Wiz options. The Amiga Wiz attaches via the serial port (the A1000 requires a gender changer). (RS# 104.)

—*DH*



OVERHEARD

"The change is in name only," said a spokesperson for Stylus Inc., formerly entitled Taliesin. The firm, known for its structured-drawing program ProVector, also noted that it is sending free 2.0 upgrades to registered owners, so if you have not yet mailed your registration card, do so now! The company retains its address and phone number: PO Box 1671, Ft. Collins, CO 80522, 303/484-7321.

All Business

LabelDex! ($74.95, ***EasyScript!***) promises to solve the problems of organizing and managing the name/address/phone lists, floppy disk libraries, and electronic mail addresses that you are now accumulating in disarray. LabelDex! is compatible with dBASE, the popular MS-DOS database manager, and supports ARexx. Not only can it search, sort, and dial the phone, it can also log floppy-disk information straight from the disk, and automatically format and print professional-looking disk labels. (RS# 113.)

Small, fast, and memory-resident, **Contact 1.2** ($59, ***Desktop Utilities***) is a personal-contacts manager and database that you can summon with a hot key. Like LableDex!, it can search, sort, and dial the phone. It can also send entries directly to your current document or to a printer (PostScript included). The program is compatible with Workbench 2.0 and customisable through ARexx. To prevent accidental losses, Contact automatically saves new entries whenever you press the Return key. Registered users are encouraged to send their ARexx scripts to the developer—any script that is included in the next release of Contact will win its author a free upgrade. (RS# 114.)

Designed specifically for special-events videographers, the **Video Escort** (***Mr. Hardware***) management system provides eight computerized forms to cover all aspects of the business. The program works with Precision's Superbase Professional 3.02; you can purchase both packages for $399.95 or, if you already own Superbase, you can buy Video Escort alone for $299.95. Video Escort's efficient data-entry system reuses previously entered data whenever possible. Not only can the software help you track client needs, special requests, phone calls, deposits and payments made, and balances due, but you can also print job contracts, receipts, crew schedules, editor's sheets, and over 20 other reports, including a sales-tax report. Video Escort can also keep track of crew and event scheduling, and you can modify all variable information. For security, Video Escort is password-protected. (RS# 115.)

For file security in networked computer systems, ***Intercore Development*** has released **InterLock** ($59.95), a programming utility. InterLock promises to give AmigaDOS an advanced set of file-locking routines that are flexible, fast, and efficient. The utility is implemented as an Exec-style resident library. You can call it from any language; the program suports both the Manx and SAS C compilers, along with various 68000 assemblers. With InterLock, programmers can create multiuser applications that allow simultaneous access to a single file. (RS# 116.)

—*BG* ►

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NEW HORIZONS

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INTERFACE LIFT

Having trouble creating software with the "look and feel" of the Amiga? Your friends at ***Commodore-Amiga*** have written a book that can help, **Amiga User Interface Style Guide** ($21.95, 224 pages). This addition to the Amiga Technical Reference Series details all the standard elements of the Amiga user interface, and documents the conventions that you should follow when writing applications. It provides definitions, descriptions, and illustrations of the Amiga's three built-in interfaces—the graphic user interface, the Shell, and ARexx—and depicts such graphics as gadgets and windows. The Amiga User Interface Style Guide is designed for all interface designers, from novice to expert. (RS# 107.)

If the software you generated with an authoring system needs a better look, you may be interested in ***INOVAtronics***' **Interface Design Kit** ($54.95), a four-disk collection of button and icon clip art. The kit is for use with such authoring systems as Commodore's AmigaVision and INOVAtronics' own CanDo. It contains over 500 ready-to-use images (in hi- and medium-res brushes) that represent functions frequently used in multimedia applications: videodisc, music, sounds, trashcan, mouse, printer, animation, pic, clock, document, floppy disk, and more. It also provides mathematical symbols, many styles of arrow buttons, and generic round, square, and rectangular button images. A 30-page manual directs you to each brush's location on the disks. (RS# 108.)

—*DH*

Cal Arts, from p. 8.
advanced techniques with such 3-D programs as Imagine (Impulse).

The 2000-square foot computer lab, open 24 hours a day, the lab was funded primarily from a grant from Disney. It holds nine A3000s, three 2500s, and an assortment of A500s and A1000s, all of which are cabled to AProDraw (R&DL) drawing tablets. The computers are linked via Ethernet to a Sun workstation that contains all of the lab's software, freeing up the hard drives and disks for the students' work. Two Video Toasters (NewTek) and an assortment of frame grabbers, slow-scan digitizers, and other peripherals are also available. One area is devoted to single-frame animation and video transfer.

TEACHING TALENT

An important part of what makes the lab work is the knowledge and enthusiasm of Amiga experts Dale McBeath, Assistant Department Director, and Sean Schur, who is not only an instructor, but a student as well. Both are artists and programmers; they have written custom software for the lab and even modified such programs as Animation:Journeyman (Hash). Dale is also a hardware guru, having built and designed an Amiga-based switching system. Sean's background is in film directing. He has extensive knowledge of computers, being involved with the Computer Research Institute. He is also an experienced teacher of advanced 3-D courses, wherein he pushes the state of the art in Amiga animation.

Besides its regular Amiga animation courses, Cal Arts has a Visiting Artists Program that has tapped the talents of such well-known Amiga animators as Gene Brawn, Joel Hagen, Jody Gillerman, and Brad Schenck. This program provides a two-week focus on each artist's area of expertise.

At the end of each year, the Cal Arts students present their work to producers, some who come from as far away as Japan and Germany. At least a third of the students are hired on the spot, even before they graduate. The Simpsons television show, for instance, employs Cal Arts graduates almost exclusively, and you'll find large numbers of alumni working for all the major animation production facilities.

A new room is now being added to the lab, and pending additional grant money, Cal Arts hopes to expand its capabilities dramatically. Staffers are also doing experimental work with virtual reality. Dale has written custom software for the project, and with Sean has designed and built a helmet and glove. The two hope to soon do more with 3-D—interactive sculpting, finger painting, and character design—and to allow viewers to interact with a three-dimensional environment.

—*Geoffrey Williams*

Little Big Show, from p. 8.
Down the way, ***Centaur*** (RS# 129) demonstrated the **Colorburst** 24-bit graphics board. Jaded by previous demontrations of it, I was not excited until I saw the box—the board is finally shipping!

Programs Plus & Video (RS# 130) showed an upgraded version of **Real 3D** (1.4), now designed to take advantage of an '040 accelerator.

ICD (RS# 131) showcased **Prima**, its new internal A500 hard drive, available in sizes of up to 105 megabytes. Because Prima needs the space occupied by the A500's internal floppy, ICD also now offers the **Shuffleboard** ($25), which allows you to make any external drive DF0:. The company's **Novia** internal A500 hard drives now come in 30- and 60-megabyte capacities and do not require removal of the internal floppy.

New hardware under development by ***INOVAtronics*** (RS# 132) will give A500 owners a video slot and lots of room for expansion in the form of a "tower." The unit will be available first as a kit. The company also showed a slick, easy-to-use directory utility called **Directory OPUS** ($59), which has scores of configurable features.

Those wanting to further configure their system speed have just one equation to solve: 2.0+x=68040. (Hint: x is the time Commodore needs to release AmigaDOS 2.0.) Among exhibitors holding 68040 boards until the 2.0 release were ***RCS*** (RS# 133), Progressive Peripherals & Software, GVP (which now promises a clock rate beyond 25 MHz), and ***CSA*** (RS# 134, with its **40/4 Magnum** hardcard, which also provides serial, parallel and RS 422 ports and accepts 64 megs of RAM).

Picking up the slack for NewTek, which was not in attendance with its usual larger-than-life display, was ***BreadBox*** (RS# 135), the Video Toaster users' group. BreadBox displayed some of the latest Toaster tapes and demos.

In addition to its usual schedule of keynote addresses, seminars and master classes, AmiEXPO offered a series of novice classes. Show representatives also announced AmiEXPO's Fourth Annual Art and Video Contest. Submissions will be accepted for seven categories, and winners will be announced at the spring 1992 show. For details, entry forms, or more show information, contact AmiEXPO, 465 Columbus Ave., Suite 285, Valhalla, NY 10565, 914/741-6500.

The next AmiEXPO is scheduled for October 4–6 in Oakland, California. Following that will be Amiga '91 in Cologne, Germany, which runs October 31–November 3.

—*BG*

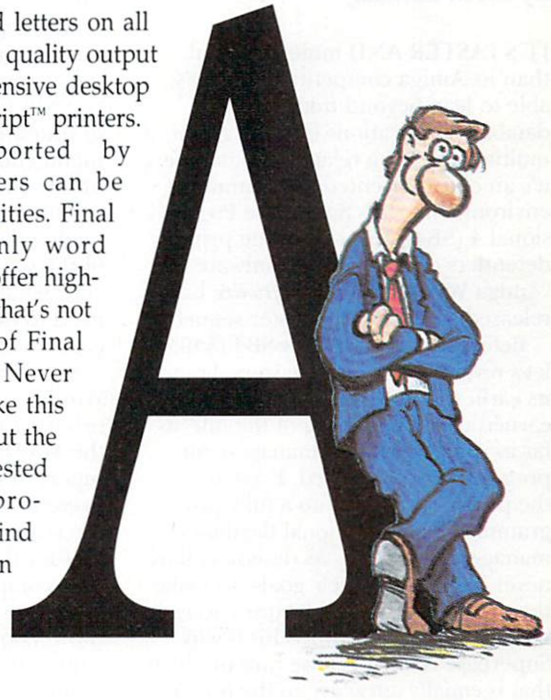
Overscan is compiled by Barbara Gefvert, Janine Jackson, and Tim Walsh. Send your news, new products, and network information to Overscan, *AmigaWorld* Editorial, 80 Elm St., Peterborough, NH 03458. ■

Before you purchase a new word processing program ask for character references

(and then ask the price!)



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Superbase Professional 4

Look! Up in the sky!

By Loren Lovhaug

IT'S FASTER AND more powerful than its Amiga competition, and it's able to leap beyond traditional database applications into the realm of multimedia. It's a relational database... it's an object-oriented programming environment...it's Superbase Professional 4 (SB4)! Yes, one of the prime defenders of productivity software the "Amiga Way," ***Precision Software*** has released another blockbuster sequel.

Before we take a look at SB4 ($495), let's review the Superbase story. From its earliest Amiga release, Superbase earned the title of "king of the hill" as far as Amiga database-management programs are concerned. Even as the product evolved into a fully programmable and relational database-management system, its designers have never lost sight of their goal—to make the product's powerful features accessible and straightforward. This is why Superbase is one of those rare products that is equally attractive to the novice with minimal needs as well as to the experienced user who demands power and performance.

Sensitive to the diversity of its clientele, Precision split the evolution of Superbase into separate tracks. Superbase Personal offers an inexpensive, nonprogrammable version of the product, while Superbase Professional affords a full-blown implementation that stands up to database-management systems available on any platform.

Up, Up, Upgrade

SB4 for the Amiga addresses several of the minor deficiencies of Superbase Professional 3 (see July '89, p.14) while adding legions of new features—so many, in fact, that editorial space and postal weight regulations prevent me from covering them in detail. To give you an idea of this upgrade's scope, consider that the program's documentation grew from around 550 pages to more that 900 pages. Within you will find over 250 new DML programming constructs, several new menu choices, and a multitude of other enhancements.

Thankfully, the new version is fully read-compatible with previous versions of the program, but if you reorganize your database under SB4, you will need to export the data for use with earlier versions.

Since the introduction of SB4 for Windows, many of us have been clamoring for the enhancements found in the MS-DOS version. I am happy to report that our calls have been answered. In fact, other than the areas where the platforms involved diverge, SB4 for the Amiga and Windows are data-compatible and operate alike. The operational similarities between these two versions of SB4 mean applications written in DML (the Superbase programming language) require only minor or, in many cases, no modification to run under either version of Superbase. This gives Amiga Superbase owners the ability to tap into the wealth of applications created for use on MS-DOS machines.

Perhaps even more exciting than the compatibility with the MS-DOS version of SB4 is the enhanced Forms Designer. Previous versions of the program allowed you to create custom data-entry screens and define relationships for multifile applications. SB4's Forms Designer, however, now includes a more efficient design and a number of new features.

Of the Forms Designer's new features, I was most impressed with its three new object types. These add a higher degree of automated and interactive control to on-screen forms and DML applications. The CMD object makes it easier to add embedded automatic commands as well as to create on-screen push buttons that execute DML commands. Your push buttons can be either solid or transparent rectangles with titles in the colors of your choice. The program gives you the option of defining hot spots over IFF backgrounds or other Forms-Designer objects.

Two more objects allow you to define graphics-based data-entry constructs. You can create a set of specific responses for a field with radio buttons that a user can select via the mouse or by pressing the Tab or Spacebar keys. Likewise, using check boxes, you can create a graphical means for selecting binary choices such as yes/no or true/false.

Another benefit of SB4's new Forms Designer is that now it is much easier to define relationships among multiple files. This was once a confusing and tedious chore, but now you can define these relationships simply by choosing a primary and secondary file and drawing a line on screen linking the fields in question. The same holds true when linking and replicating fields to define one-to-many relationships (transactional processing).

One problem that plagued pre-SB4 versions of the Forms Designer involved fonts. Although previous versions allowed you to display informational text and field names using any screen font you wished, you could not display your field data itself in any font other than the system font. This stumbling block has been removed, so that when you use the desktop-publishing-like tools provided, it is very easy to construct attractive data-entry and

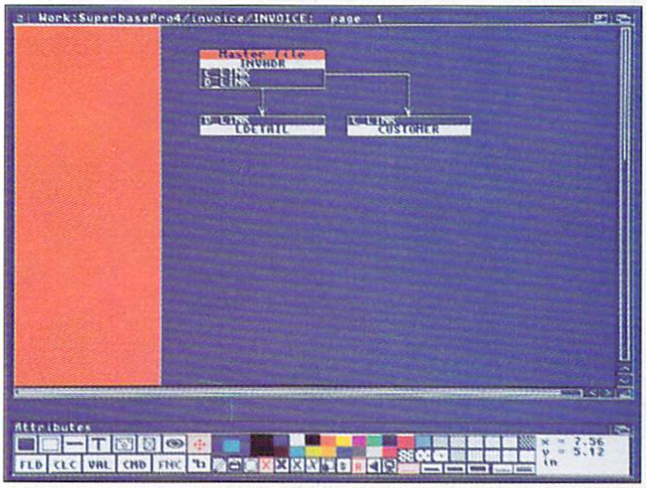
For information about the vendors of products reviewed, see "Manufacturers'/Distributors' Addresses" list on p. 118.

processing screens. In addition to these facilities are a number of new options for importing non-IFF graphics, scaling images, and working with image palettes.

DML control is another benefit of the new Forms Designer. DML now provides a complete complement of high-level commands for dealing with every sort of mouse, pull-down menu, control panel, and key-press event occurring in conjunction with screen forms and their new object types. Further enhancing DML's form-control facilities is a new set of commands for actually defining a new form and adding form objects completely under DML, thereby allowing you to bypass the form designer itself for applications where it might be desirable to do so.



With Superbase Professional 4, boring database screens are a thing of the past.



Linking your data base files is as simple as drawing lines on screen from one file to another.

What's in Store?

Although you may care little about MS-DOS compatibility or the Forms Designer, there are still plenty of reasons why you may want SB4. To begin with, Precision optimized Superbase's internal storage format in order to provide better performance and increased storage capacity. Precision asserts that Superbase can now store, index, and retrieve information from a one-billion-record database. In addition, SB4 now includes a single-character logical field type as well as virtual fields.

Precision extended Superbase's ARexx support and provides adequate documentation. Overall, the manuals are greatly improved. We no longer have to live with the fascinating trivia on installing the Atari ST version of Superbase, the easy-to-lose stapled addendum booklet, and the 27K read-me file. Replacing these rough edges are two well-written, beautifully illustrated, tab-divided manuals in D-Ring binders.

Precision improved both the Superbase label-dialog and report-generation facilities which now incorporates many new options and is substantially easier to use. And finally, Precision opted to make SB4 noncopy-protected right out of the box.

So do I have any gripes about SB4? Just two. First, SB4 comes with only slightly better than Preferences-based printer support. While I realize this meager support reflects mostly on Commodore, given a package of this price and stature, I would like to see better support for resident and soft printer fonts. Lastly, I think that the indexes of the new manuals are a bit skimpy for 900 pages of text.

Overall, however, SB4 carries on the Superbase tradition of excellence. The enhancements, particularly those made to the Forms Designer, expand Superbase's potential considerably. SB4's interactive on-screen-button support and programmable nature make the program ideal for multimedia applications, especially when you need database accessibility on a grand scale. These new-found talents combined with the product's success as a traditional relational database manager, truly make it super.

Real3D Professional

Closing the gap betweeen reality and imagination.

By Kelly Day

IF NOT A SCULPTOR, an artist requires the imagination to translate 3-D reality into what is essentially a 2-D medium. Photography gave us a relatively simple means to convert a 3-D world into 2-D form, but in many ways it left out the imagination or inner vision so close to an artist's heart. The advent of computers, coupled with 3-D modeling programs, gave us the opportunity to get back some of that, however, by providing us with a kind of camera of the imagination.

The trouble is that this new medium has been too complex and 3-D software has required too much tedious calcu- ►

lation an tinkering. That's where programs like ***Activa International***'s Real3D Professional ($499) are ready to make a difference. The idea behind Real3D is to minimize the model-building process that more often than not hinders a designer's progress rather than helping it. Real3D accomplishes this by eliminating the process of working directly with points or vertices.

To create designs in Real3D, you combine wireframe representations of simple primitive objects (cones, cubes, spheres, etc.). Initially, I balked at this approach, because I always liked the detail that direct control over vertices gives me, but some of Real3D's built-in features present a very convincing counter argument.

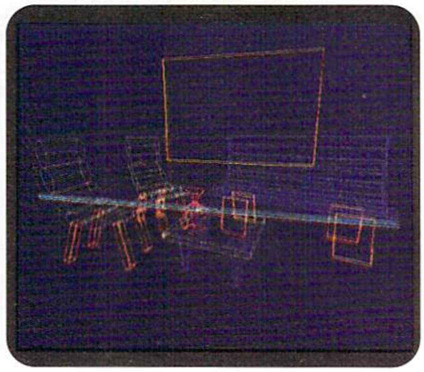
At the Count of Three

Real3D is divided into three basic sections. First, you create and edit your scenes and objects. In the second, you rotate these objects and make adjustments to their positions so that when you put the third section—the rendering mode—to use, the observer's point-of-view is precisely the way you want it.

Real3D's tri-view is similar in some respects to Byte-by-Byte's Sculpt 4D environment. Not only does it provide three views of your scene, but it also provides markers for your observer position (camera), aim point or target, secondary pointer, and lamps.

As mentioned previously, you build your models by continuously adding primitive objects to a hierarchical structure. There are three reasons why this process is more accessible than any 3-D program I've previously used. First, because what you see is a simplified wireframe of each primitive and not all of its constituent surfaces, the tri-view is kept very clean and clear of extraneous lines.

In addition, the color that you select for each primitive object is reflected in



Real3D Pro lets you model with lines first, before you commit to rendering.

its wireframe color, which also helps to keep individual primitives quite distinguishable from one another. Typically, hierarchical systems prove cumbersome when you are designing in a 3-D environment, because they require that you stop designing and name each little part as you go along.

Real3D eliminates this stop-and-go process by automatically naming each object for you as you create it. It gives each object a temporary name, such as "Cube1" or "Sphere5," for example. You can either pay attention to the naming and hierarchical placement of each object as you go along, or you can completely forget about it and rename them later. Real3D lets you rename each object and then copy, cut, and paste individual pieces into the roots of the hierarchical tree.

Working with outlines of objects makes designing simple. There is no need to put a boundary box around a set of points in order to quickly move ►



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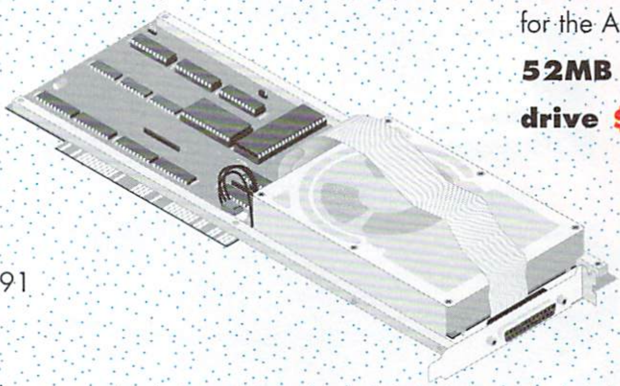
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them. Each primitive object is born with its own simplified boundary box. Such movements as rotate, relocate, stretch, and scale occur as quickly as you can move the mouse.

Real3D offers a veritable host of special built-in tools, such as Lathe, Fence, and Tube, that all work to create extruded or molded objects in 3-D as fast as you can draw them in 2-D. If the tri-view refresh rate starts to bog down as your model becomes more complicated, there are controls that allow you to choose whether you want all of the windows to auto-refresh after each movement or just the one in which you are currently working.

The same goes for the objects within the windows. You can select auto-refresh for just the object currently under scrutiny—from its immediate parent ondown. You can even set it up so that only the component you are currently moving will be constantly redrawn. If all this still is not enough to speed things up or clarify the scene for you, then you can also hide objects by name from the hierarchy.

Glass Watermelons

Through a variety of controls, you can whip up just about any material or texture that you can imagine. With the material creation requester's sliders, you can control various aspects of the physical properties of light on the surface of an object. The program also lets you map pictures and textures—including a rippling-water effect called bump mapping—onto surfaces.

Using a set of "Boolean logical operations" (a complicated term for a cookie cutter), you can quickly and easily create intricate objects. It's like having a tool set made out of thin air: If you need a drill or a scoop or a saw, you just make one, use it, and then toss it out. You can overlap any two objects in space and then combine them in one of six ways to produce a new object.

If you link objects with the AND function, only the parts of the original two objects that were overlapping will remain after the operation is complete. If you use the AND NOT function, the tool or object will leave a hole of its own shape in the object it intersects—similar to the way a cookie cutter works. EOR, the opposite of AND, leaves only the parts that did not overlap in space. DIVIDE behaves the same way as AND NOT, except that you get to keep the cookie, too.

The remaining two functions (called AND WITH PAINT and AND NOT WITH PAINT) behave the same way as AND and AND NOT, with the slight difference that the attributes of the tool that you used to cut are left on the surface of the resulting object. This feature intrigues me because it is one of those things from the realm of imagination that you cannot create in reality. What this means is that, for example, you can cut tiger-stripe holes in a watermelon or glass-lined scoops out of a piece of wood or carpet.

The light sources in Real3D are superb. By placing a lamp in a tube and then aiming the tube at my model, I created a spotlight. I agree with the philosophy in use here; this light source is like a filament around which you place some sort or opaque object to make lamps.

Real3D's Wireframe mode provides a perspective through-the-camera point of view of a model or scene. With it, you can manipulate a series of controls to move your point of view around—almost in real time—for proper framing

Continued on p. 90.

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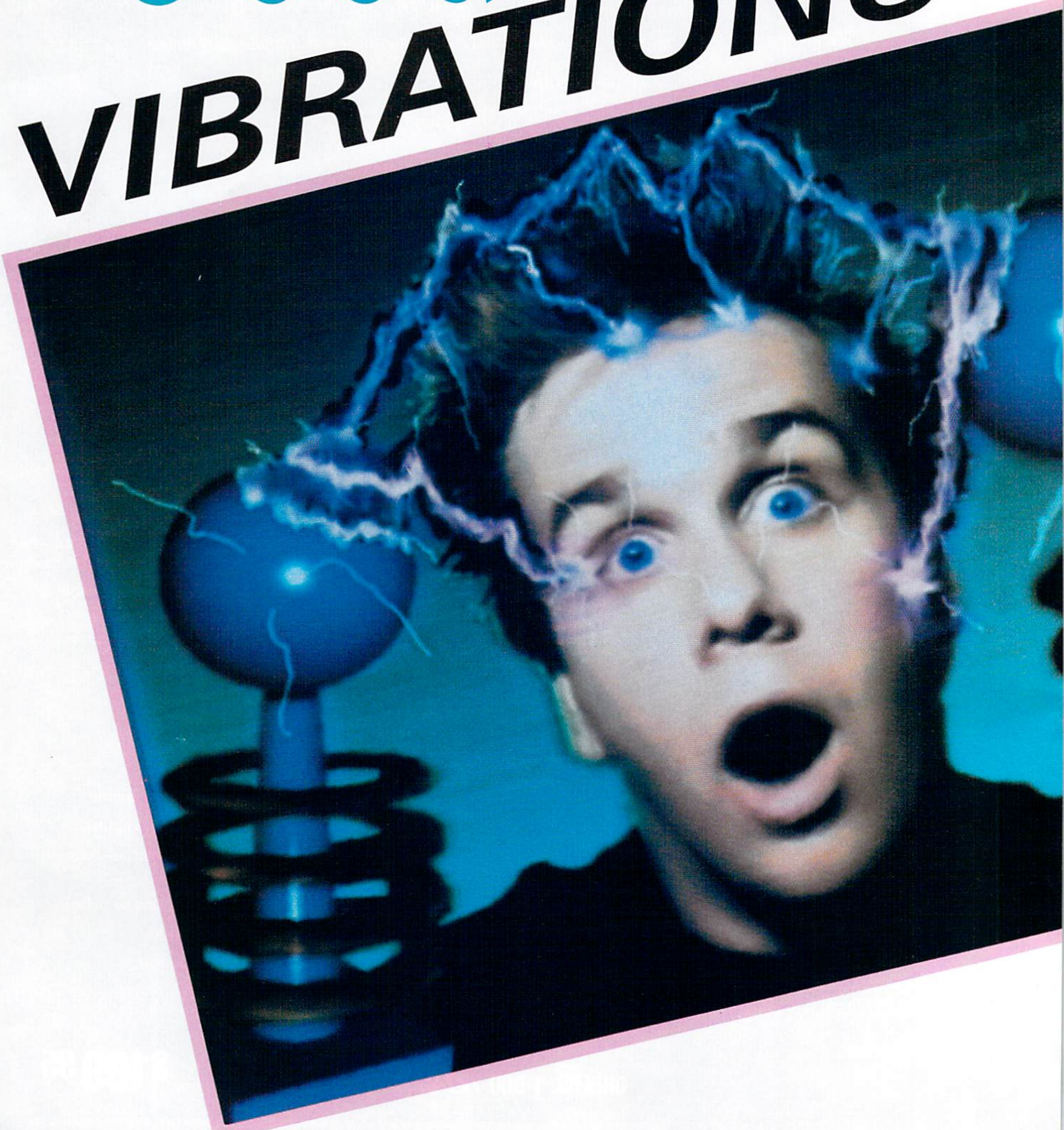
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Good VIBRATIONS



AMIGA IMAGE BY MARK SWAIN



How to give your animation ex-ci-ta-tion? Here's some advice from the experts.

What makes an animation successful? What is it that makes you sit up and take notice when one cartoon starts to roll but sends you drifting off to dreamland when the sequel comes around?

To be successful, your animation must be clear—in both purpose and execution. It's also got to be believable. Exaggeration aside, you must take into account the rules of physics when producing an animation. Further, your animation should have personality; tiny characteristics are key. But th-th-th-that's not all, folks! Sometimes, a touch of razzle-dazzle is in order (see opposite page).

We asked a group of professional animators to share some of the techniques they use in their work. While these techniques are basic, they are not necessarily obvious. They can, however, make a tremendous difference in the impact of your animation. Although the tips these experts provide may be exemplified in terms of a particular program, these pointers can apply to 2-D and 3-D animation alike, so everyone can benefit.

So now, without further ado... let's get on with the show!

CLARITY IS KEY

BY ERIC DANIELS

As an animator, the most heinous crime you can commit is to bore your audience. You've got to grab them by the eyeballs and make them want to watch your animation! The best way to get and hold people's attention is to clearly communicate an entertaining idea. Here is a four-point plan for doing just that:

Create definite characters: Know who your characters are and make them known early to your audience. Stereotypes can help communicate personality quickly. Your audience must have a set of expectations built up about the character, which you can then follow or break depending on your mood. This goes for inanimate objects as well as characters. If you are animating a spaceship or a car, let the audience see it and become familiar with its shape before doing anything fancy with it.

Keep your story simple: Don't try to animate a Dostoevsky novel; simple ideas make the best animations. One of my favorite short animated films, called Sysiphus, depicted nothing more than a man pushing a rock up a hill. What made the film ►

special was the beautiful simplicity of the idea and the skill with which the animator portrayed it. The more complicated the idea, the more the audience will want to wander away.

Stage clearly: This is where your story-telling abilities get tested. You have to break the action down into poses, all of which advance the action. Strong posing is a mysterious art, but there are a few rules: Try to create strong silhouettes, with important objects or gestures held away from the body, surrounded by "clear air." Don't clutter your story with too many poses; use just enough to convey the idea clearly.

Use the character's whole body with every motion, and try to caricature attitudes that the audience is familiar with. For sadness, throw the head forward into the hands and slump the shoulders forward. For pride, arch the back until the chest swells out like a sail. Isolate the important motions and objects, and make them fill the screen if possible.

Keep the tempo interesting: If you introduced new poses at exactly one-second intervals, it would not matter how interesting they were; the animation would be lifeless. You must break up the timing into fast-slow-fast sections, with an eye toward what the character is thinking.

If you want a mischievous character to have a brainstorm, you might show him rubbing his chin slowly while looking skyward. Then, you might slow his hand to a complete stop for a second, and make his eyes widen as the idea formulates. Then, he might have a sudden look of anticipation and switch to a delighted expression with his finger raised. With him looking into the camera, his "Eureka" expression might slowly change to a devilish one, after which he might zip

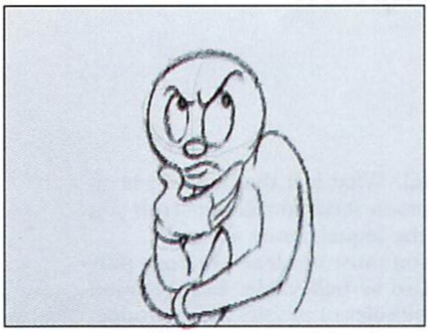


Figure 1. A brainstorm brews

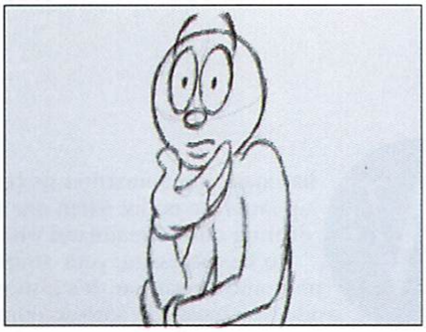


Figure 2. Hey...

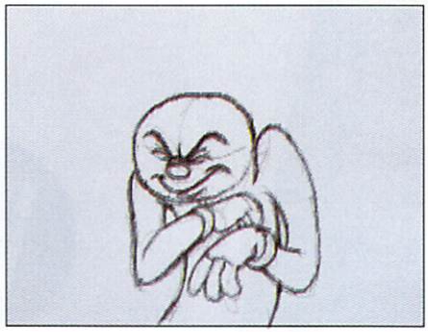


Figure 3. Uh-oh

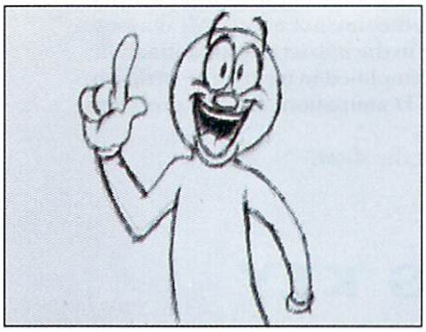


Figure 4. Eureka!

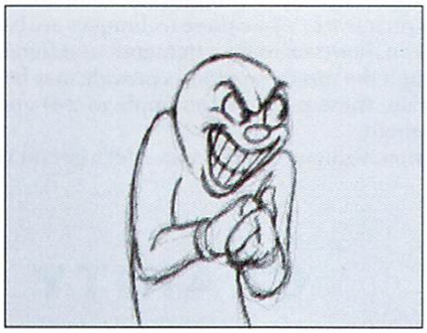


Figure 5. A devilish look

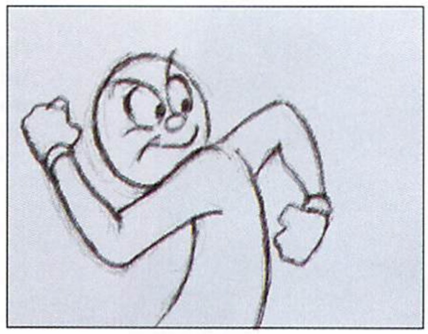


Figure 6. Ready, set...

Figures 1–7 show the key frames of this sequence. Figure 8 shows you various options for laying out the animation while keeping the pace varied.

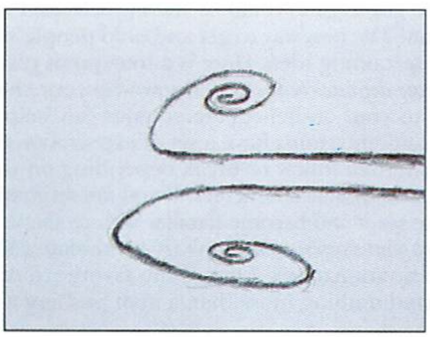


Figure 7. ...whoosh!

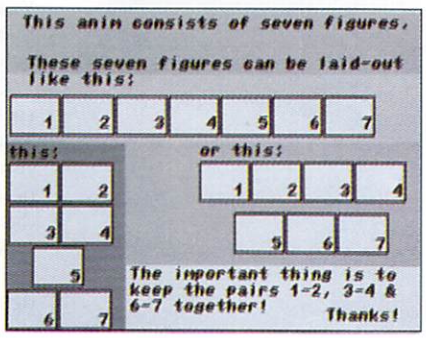


Figure 8. Layout options

quickly off screen. In every case, the speed of the motion helps to communicate what the character is thinking.

So remember, clarity is essential in communicating your ideas and in making your animation succeed.

Eric Daniels, a traditional animator for 13 years, has worked on such feature films as "An American Tail" and "The Rescuers Down Under," and he did all the animation on Disney's Roger Rabbit game for the Amiga. He currently works for Baer Animation in Hollywood.

EASY EASES

BY KELLY DAY

Aside from good story-telling and image composition, I think one of the most important aspects of good animation is accurate easing in and easing out. Unfortunately, most computer animation to date has overlooked this phenomenon. I think this is largely due to the analytical "one-thing-at-a-time" nature of most computers. But we smart people who own Amigas already know the value of doing more than one thing at a time (multitasking), so here is a tip for how to get good "eases" in computer animation.

Several 3-D and 2-D animation packages for the Amiga are able to perform in-betweening—that is, taking two keyframes that you provide and drawing transition frames between them. Rarely, however, do such programs provide a good method for accurately accelerating between key poses. It's as though things in the computer world had only two states of being—stopped and full-speed movement—with no smooth transitions between the two.

In the real world, that is not the case. Except for clocks, not many things move at a constant rate of speed. When you lift your arm from your side, for instance, it starts out slowly, gains speed, and then rapidly slows down before stopping or changing direction.

Here is a technique that I use to adjust tweens and make the motion look more natural. While I do this mostly with Sculpt-Animate 4D (Byte by Byte), you should be able to apply it to any program that generates only precise, even in-betweens for key-frame-type animation.

What I do is save off two key frames that I want to 'tween (see Figure 9), and then load them into a second, multitasked Sculpt environment. There, I set up more in-between frames than I will actually need. Then I generate only some of the new key frames between them—not at regular intervals. I skip a few frames progressively. For instance, if I wanted to have a car accelerate forward and then stop, all in ten frames, I might actually design the sequence in the second program to generate 20 frames between my starting and ending points, for a total of 22. Then I'd have the program generate new key frames for frames 2, 4, 7, 11, 15, 18, 20, and 21.

It helps if you can visualize the frames getting further apart and then closer together, so sometimes I actually draw little hash marks on my monitor with a fine-point Dry-Erase (erasable) marker. The marks look something like this:

|||| | | | | | | |||

This helps me get a feel for how an object is going to move. In Sculpt 4D's Keyframe Take mode, I draw these lines on the glass right over the key frames so that I can look below and see exactly which frames I need to generate (see Figure 10).

Once I have the ten new key scenes I need, I go back to my original animation and insert them all in succession between the original two by renaming them (see Figure 11). Now what I have is a key-frame animation where all ten in-between frames are key frames. The result is that instead of an even stop-go-stop animation, the car accelerates and decelerates—just like real life!

Kelly Day is Computer Animation Director for Walt Disney Television. He was the leader of the crusade to introduce Amigas to the company. ►

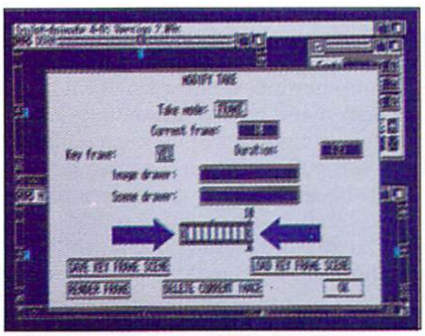


Figure 9. In the first Sculpt environment, choose two key frames to save.

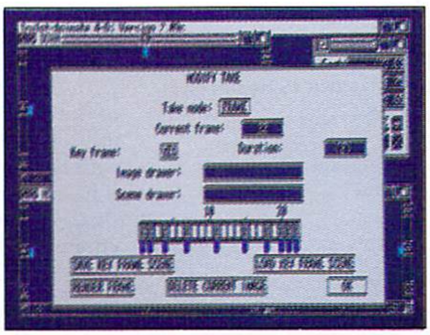


Figure 10. Generate your in-betweens in the second Sculpt program. Drawing hash marks (here in blue) on the monitor can help with timing.

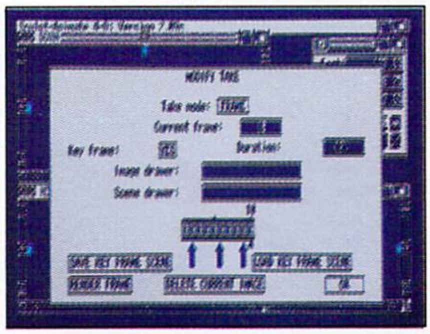


Figure 11. Back in the first Sculpt environment, insert the new frames.

GIVE IT PERSONALITY

BY STEVE SEGAL

It's easy to create an animation on the Amiga. If you use DeluxePaint III (Electronic Arts), you can just move the mouse around and voilà—instant animation! But to connect with an audience, you must give your animation personality. That does not mean your character must be a person or an animal; anything can move with personality—even typography.

There are lots of ways you can give an animation personality. Here are a few things to consider:

Speed: How fast an object enters a scene affects how we react to it. Fast-moving objects denote youth, energy, excitement. Slow motion, on the other hand, implies old age, stateliness, or heaviness.

Squash and stretch: An age-old animation convention, the squash-and-stretch principle says that when a moving object makes contact with a surface that stops it short, the object shrinks in the direction it was moving and expands in the other directions. As an example, a bouncing ball gets shorter and fatter when it hits the floor. Keep in mind, though, that the volume of the object should stay constant at all times.

Anticipation: When you throw a punch, you draw your arm back so you can pack more power. This is anticipation in action. In animation, you can use this principle to direct your audience and make the action clearer. When a character prepares to run to the left, he should first rear to the right. This makes it easier to realize what is happening, especially when he runs off quickly.

Follow-through: Just as follow-through helps your tennis swing, it can benefit your animations. The idea is to go past your destination point and then pull back. For example, if a car screeches on its brakes in an attempt to stop, the top of the car will keep going forward a little bit and then move back. The faster the action is, the more pronounced the follow-through should be.

Anthropomorphism: Animation can and often does bring inanimate objects to life. You can add life to a car, for instance, with something as simple as a funny sound—or by turning its headlights into eyes and the grillwork into a mouth. Don't go overboard with this technique, however; there should be some reason why an object comes to life—even if only for gag purposes.

Exaggeration: If Popeye flexed his arm and a muscle of ordinary size popped up, boy would we be disappointed. Why do you think Arnold Schwarzenegger is so popular? He's bigger than life! Don't stick to exaggerating just characters, though—exaggerate their actions, too. A running character should take bigger steps and jump higher than humanly possible.

Overlapping action: When a character moves or comes to rest, not all parts of him move at the same time. For example if a rabbit turns his head, the tips of his ears should start moving after his head starts, and stop after his head stops.

Ignore all rules: As long as you consider the possibilities inherent in these techniques, feel free not to use them if the animation works better without them. Animation is, after all, a medium of creativity.

THE APPLICATION

To demonstrate some of these principles, let's consider a before-and-after example. In the first instance, we'll have all the letters in the word BEFORE move onto the screen at a constant speed and then stop in the center. Now this is about the most boring presentation imaginable. Although you could make it more impressive by adding some flips, spins, and highlights, it still would not have personality. Sometimes dazzle is what the client wants and expects from computers, and I'm a sucker for it myself. But it can get tiring after a while, and it's not likely to carry an animation by itself.

In the revised presentation, the word AFTER starts at the left of the screen and zips to the center. On the approach, the letters are skewed to look streamlined, with the top bent to the right. When the word jerks to a halt, the tops of the letters keep going as a follow-through, but then bounce back. You can add some choreography by having the letters enter at different times, and even some humor by making one letter late and having it run to catch up with the others. This is one example of anthropomorphism. Another is my de-

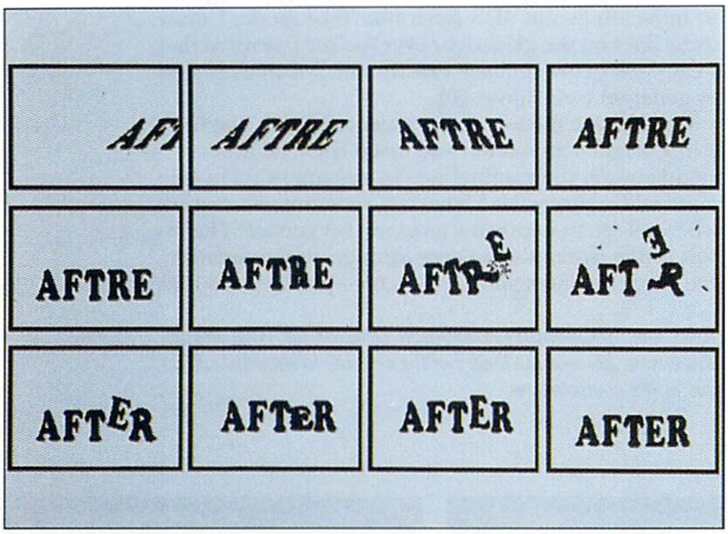


Figure 12. Personality helps AFTRE to become AFTER.

cision to transpose the last two letters (this gives the spelling AFTRE), so that the R can use its legs to kick the E. While the E is flipping overhead, the R runs to take its place. When the E lands, it squashes and then settles back to its original shape.

The accompanying storyboard (Figure 12) shows the key elements of the AFTER sequence. This example is just a simple introduction of letters, but by adding some humor and taking advantage of some of the possibilities of animation, the action is more memorable.

Starting Tips

Once you have created a character or object that you want to animate, try to determine its weight and mass and imagine how these factors will affect its movement. A rubber ball and a bowling ball react completely differently, so you must decide what kind of material the object is made of before you move it. Also, timing is critical, but very difficult to perfect. I often use a stopwatch to try to create the action in my mind. While you are working, don't be afraid to act out the motion of your characters—and don't be embarrassed to make sound effects with your mouth.

It is a good idea to work as roughly as possible at first, so you can keep the motion in your mind and not worry about details. I draw very quickly in DeluxePaint III to get the rough shape of the character; then I draw over my roughs in another color. In that way, I can use the Stencil option to lock the new color in and then clear all the frames to get rid of the rough drawings. With Disney Animation Studio, I insert a blank frame after the rough one, draw the cleaned-up version, and then delete the rough frame.

Finally, studying tapes of animation will help you appreciate the imagination and expertise that has gone into those wonderful works of art. Once you pick up on some ideas, you will be able to apply them to your own epics.

Steve Segal originally became famous in the Amiga community for his "Dance of the Stumblers" animation. He has also done animation for ABC's "Into the Night with Rick Dees."

SHOCK THERAPY

BY MARK SWAIN

You've seen them on television: animated electric bolts that blast onto the screen, etching and singeing—sparking life into still graphics and titles. These effects are not difficult to produce on your Amiga. All you need are a paint-and-animation program and some imagination.

To set up for these effects, start your software in any resolution—I tend to use lo-res interlace. (For the purposes of illustration, I will reference DeluxePaint III.) Create a pallete containing a dark base color, a lighter version of the base color, and white. For electric effects, use dark blue for the base, light blue for the highlight, and white for the hot electric flashes. Other color combinations produce different effects: using shades of orange, for instance, creates fiery sparks. For a plasma or ray-gun blast, try a combination of purple and green, with white for the tips.

To create an electrified title sequence, begin by choosing a large font with which to make a template for your effects. Using a color that is not in your effects palette, type in your title (if the text is not large enough, grab it as a brush and resize it), and place it where you want it on the screen. Then create ten frames.

Now that your template is in place, click on the base color you defined for your effects. Then select the smallest (single-pixel) brush and the continuous freehand-drawing tool. (You can also use the smallest square brush for the base color and the single-pixel brush for the highlight colors.) Jiggling the mouse slightly, trace through the letters with a continuous stroke, giving the appearance of random electricity (see Figure 13).

When you finish with frame 1, advance to each of the following frames and repeat the process. Make ►



Figure 13. Trace through the template with the base color (top). Then remove the template and add the highlight color. Finally, use white either to trace the whole title or to create power surges.

your bolts random, but try not to make drastic changes from frame to frame. In other words, if you have a large flare or electric branch in one frame, it should not suddenly vanish in the next, but move or change slowly throughout the following frames.

With all ten frames traced using the base color, create a stencil that locks all of the colors but that of the text template. With the stencil on, clear the frames to remove the template.

Now, using the base color as a guide instead of the template, select the highlight color and trace over the top, leaving some of the base color visible. While you are drawing, just wiggle the mouse as before.

The final step is to add the white heat. You can do this in one of two ways. The first is simply to trace the letters as before, this time using white. The result of this option is that all three colors are interwoven together. The second method gives the effect of electrical surges streaking through the text. To get that result, first determine a path that the surge will follow. For example, in the word "Therapy," the surge would crawl down the T, over to and through the center of the H, and then through the other letters. Find your starting location and begin to draw the white surge as you did with the other colors. Once you've created a short surge, simply advance to the next frame (by pressing the 2 key) while you are drawing. In the following frames, continue the surge on its path by drawing and advancing to the next frame. It is best to keep the surge lengths approximately the same. Once the surge reaches the end of a word or title, you can repeat the process to add two or three more surges to the animation.

It may sound too simple to work, but you will catch yourself listening for the thunder when you run the sequence!

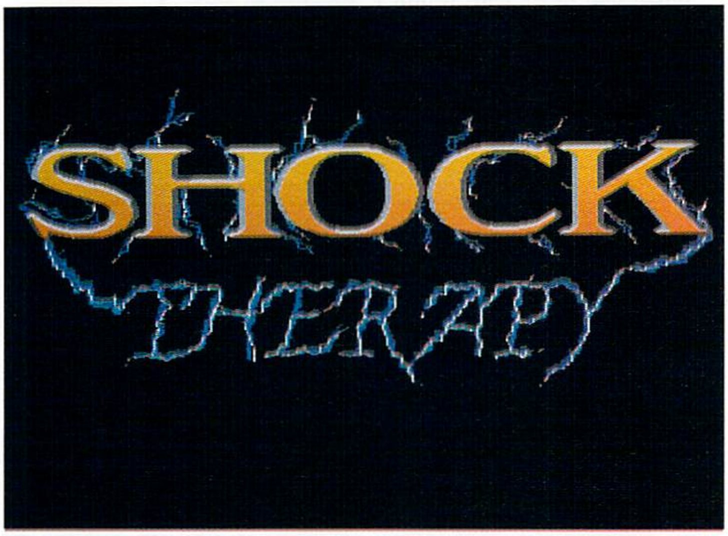


Figure 14. Adding effects to an existing graphic.

If you want to add electric effects to an existing title or graphic, you can use a similar approach. To finish a title with crawling electric shocks, clone the original screen as before to produce 10 frames. With the word Shock in Figure 14 as an example, use dark blue to draw the short electric shocks on the left sides of the S in the first frame. Then advance to the next frame while continuing to draw. It is best to keep the path short, limiting the shock's movement to one curve or surface. Make the shock grow larger as it travels around the graphic, and then have it shrivel back when it reaches the end.

With the base color completed, add the highlight color to each frame. The final step is to add a white tip to the front of the shock. If you want, you can add surges, but beware of cluttering the graphic. The final animation should have several shocks spaced evenly throughout the graphic.

What's an electric effect without a few lightning flashes? You can add lightning to any of the above examples, or to other animations where they would fit in. Simply find the spot where you would like the flash to occur, and select the Add Frame command from DPaint's Animation menu. Next, select the Filled Box tool and the color white, and fill the entire screen with a white box. Then skip two frames ahead in the animation, and do the same thing. It may sound too simple to work, but you will catch yourself listening for the thunder when you run the sequence! ■

Mark Swain is a California-based freelance writer who does video post production and computer animation. He has shown work in the Siggraph Electronic Theater '90 and the 3rd Animation Celebration.

ANIMATION Techniques 2

Visual Alchemy

These tips on 2-D morphing techniques may not make you rich, but they will certainly add a lot more pleasure to your animation efforts.

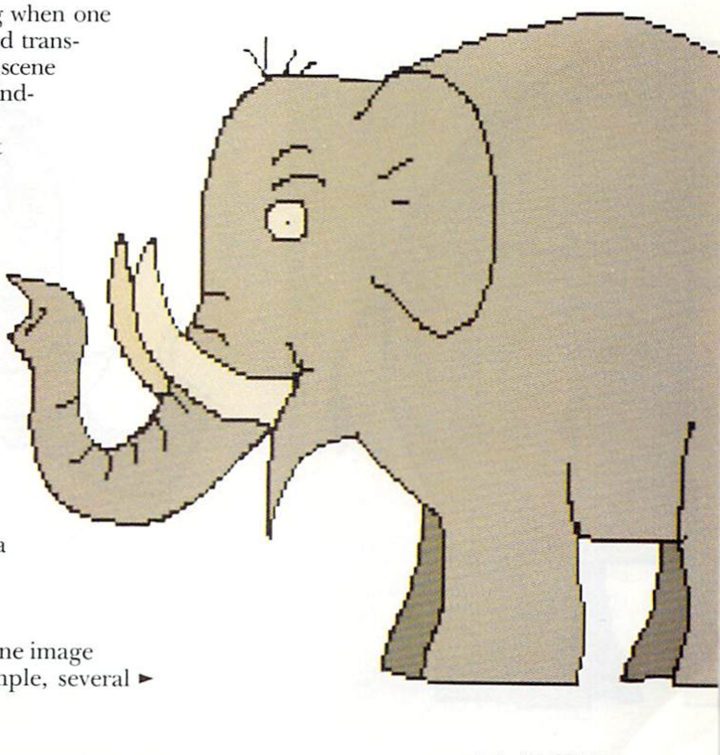
By Tracy Sabin

Like the dream of medieval alchemists, the whole idea of metamorphosis is intriguing. While some of those old-timers were in it just for the dough—a "get-rich-quick" scheme to walk away with the gold when the experiments were over—others had more lofty intentions. They were fascinated by the very idea that all matter might essentially be composed of one substance that appears in different forms, and that it should be possible by physical treatment to cause one form to change into another. They weren't talking about DNA molecules, either; no, they were dealing with some pretty heavy-duty natural magic.

We animators can also feel our imaginations stirring when one considers the possibilities attached to taking images and transforming them into something entirely different from one scene to another. That's what "morphing"—specifically 2-D hand-drawn (mouse-drawn, really) morphing—is all about.

Now, there are more and more Amiga programs that perform morphing automatically, so why would anyone want to draw a morph by hand? But that's like saying the goal of alchemy was *only* to turn base metals into gold, period. Those medieval wizards and magicians were up to a lot more than just that.

Besides, most of the programs that morph automatically are 3-D programs. If you are interested in 2-D morphing, a 3-D program is not the optimal tool. Further, most 2-D programs that have a morph function can deal only with simple shapes. Even if a practical program did exist that could automatically morph between two complex, unrelated IFF images, there are compelling aesthetic reasons why you might want to draw the morph frame by frame. It's simply not true that "a morph is just a morph is just a morph..."



A Morph by Any Other Name...

The fact is that there are myriad ways to morph from one image to another. Consider my elephant-into-a-horse example, several ►

frames of which run along the bottom of the pages of this article. Instead of the rougher, but more creative (and fun) transitional frames that I morphed by hand, a program that morphs automatically would deal with these images as lines or shapes, and it would create a nice, smooth, but quite mechanical metamorphosis.

There's more than one way to turn an elephant into a horse, however. For instance, you could consider the fact that the two animals share common characteristics and morph individual body parts from one animal to the other. The eye could remain intact and travel to its new resting place, the legs of the elephant could elongate and narrow, and so on. Or, perhaps you would like to play with shapes, instead. You could transform the body parts into balloons. The head, each leg, the tail, and the body could all become balloons. The balloons then might float around and transform back into body parts. Maybe you would like to add more animation to the morph: Instead of balloons, you could have butterflies that fly around before they transform into the new image.

You could even combine a morph into the action of a scene. The elephant starts walking, runs into a wall but continues walking, while at the same time slowly squashing into a big lumpy wad. When the wad is finally a big amorphous mess, it could start walking back away from the wall, becoming the horse in the process. The point is not simply that the possibilities are endless, but that a morph can have some meaning. You can use a morph not only for its visual appeal, but also to help tell your story. An elephant that morphs in a mechanical way into a horse has a different meaning than an elephant that turns into butterflies that fly off and transform into a horse.

Morphing: Means and Methods

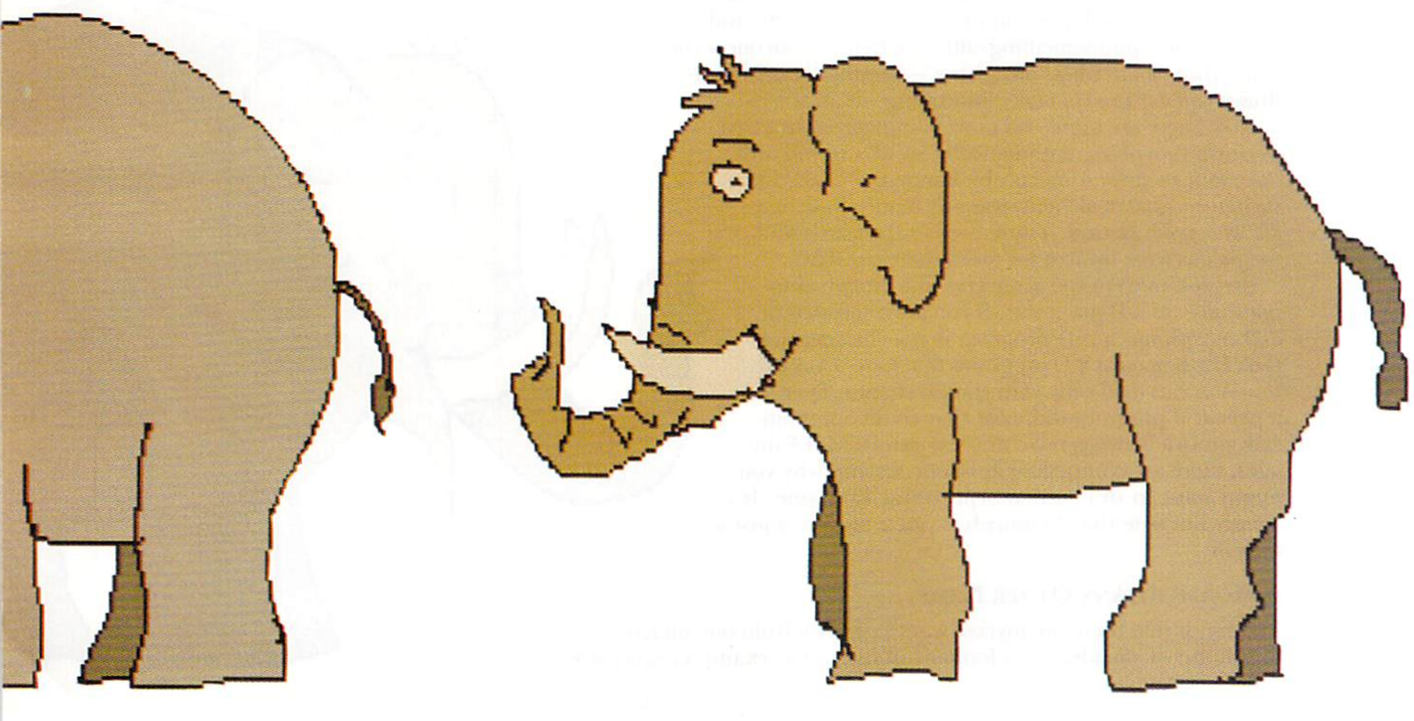
Well, if our "elephorse" example got you interested in trying 2-D morphing, what kind of animation program should you look for? There are two basic requirements. First, the program must let you move from frame to frame, backward and forward, with ease. Second, it would be helpful if it allowed you to see previous and subsequent frames as you draw—the so-called "onion-skin" effect. **The Disney Animation Studio** ($179, ***Walt Disney Computer Software***) is a good choice because it fulfills both requirements. You can also work with **DeluxePaint III** ($149.95, ***Electronic Arts***), although the program does not allow you to see previous and subsequent frames. (The soon-to-be released **DeluxePaint IV** supposedly will include an onion-skin effect.)

With ideas in mind, and software in hand, just how does one go about morphing? The three approaches described below should put you on the right track.

Standard Key-Frame Morphing

Key-frame morphing begins with the creation of such key frames as the elephant and horse discussed above. For the purposes of illustration, let's use simpler key frames. The left half of Figure 1 shows two key frames, a circle and a square, both visible on the same screen. In the Disney Animation Studio, the frames appear in different shades of gray, becoming more faint the further they are from the current frame. If you have several key frames loaded, you may want to use the bracket key ([) to eliminate from view all but the two key frames you are currently working on. If you are using a program such as DeluxePaint III that does not provide an onion-skin effect, you will need to insert a blank frame between your key frames and then skip back and forth between the two key frames to determine how to draw your morph.

Using your key frames as a guide, draw a morph frame that strikes a middle ground between the two key-frame shapes. It might look like a square with rounded corners (the right half of Figure 1). If you are using the Disney Animation Studio, you need to place your morph drawing in its proper position between the two key frames. Because the onion-skin images are the frames immediately preceding the current frame, your



Imagine ANIMATION

Imagine animation. It's easy if you try

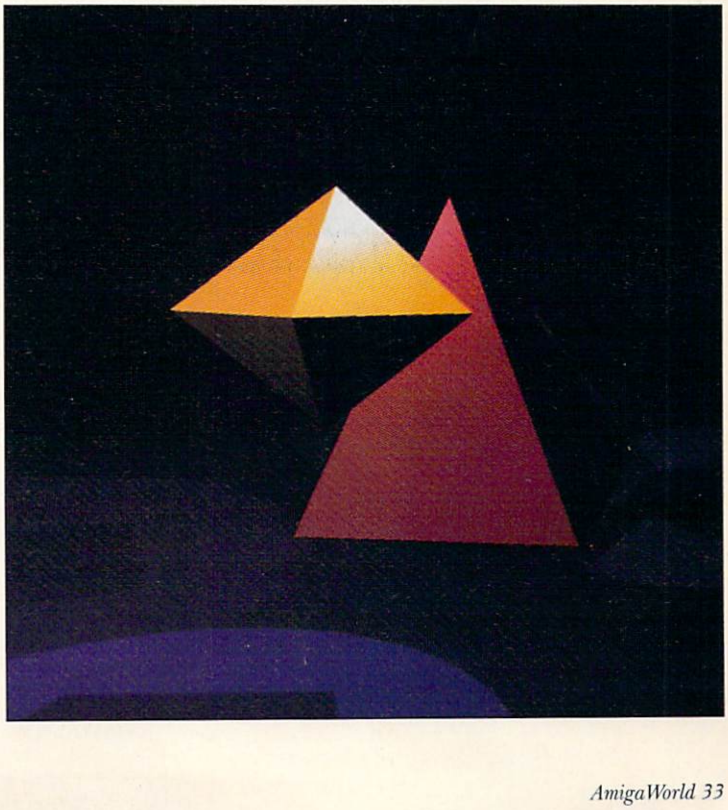
(and if you have a little help from your friends!)

Animation is not what John Lennon had in mind when he sang his ballad "Imagine." It is, however, what Amiga users have in mind when they enter the Stage Editor in Impulse's powerful 3-D program of the same name. Too often, though, the objectives of would-be animators appear as elusive as Lennon's vision. That's because Imagine's animation module can be difficult to grasp, and the program's documentation is of little help.

To help you harness Imagine's elusive animation power, I've worked up an exercise that demonstrates how to use some of its features. The project employs techniques for rotating objects, moving objects on paths, creating spotlights, following objects with both lights and camera, and even changing (morphing) one object into another.

The finished animation contains a revolving pyramid that changes colors (from red to blue, green, yellow, and then back to red). The focus is on a gold rotating object illuminated by a spotlight as it circles the pyramid.

The project takes about an hour to create, but rendering time varies according to the speed of your computer. To hasten the production, I have indicated with square brackets where you can use default function keys and hot-key combinations. For example, [F1] is the F1 key and [A-4] is the Right Amiga key plus the 4 key (press both together). Keep in mind that numbers or names entered into a field must be followed by the Enter key, or the data will not be retained. ►



By Steven Blaize

This tutorial is designed to run on a 1MB machine with one floppy disk. If you plan to work further with 3-D animation, however, I recommend you add a hard disk to your system.

Don't Forget the Plans

Before you start the program, you should have a good idea of what you would like to do with your animation. This planning step cannot be overemphasized. Even a storyboard representing key frames with stick figures can point up potential problems. Because I outlined above the concept for this project, you can proceed to load Imagine (all of the references in this article are to version 1.1).

Planning cannot be overemphasized.

Select Project-New [A-N] from the menu; then indicate which disk drive you want to work from and enter MY3D for the name of the project. Imagine will automatically create drawers for storing pictures, objects, and animations. In Imagine, renderings are controlled with subprojects, which let you render an animation at one resolution for testing, and at another for production.

Create a subproject by clicking on New (your project's disk and drawer should be indicated). Then type First requester into the file box and press Enter; the parameters for the Rendering Subproject screen will appear (Figure 1). Click on Presets, and then choose Laced HAM Quarterscreen for this project; the rest of the defaults are fine. This selection is based on time and space requirements. Click OK.

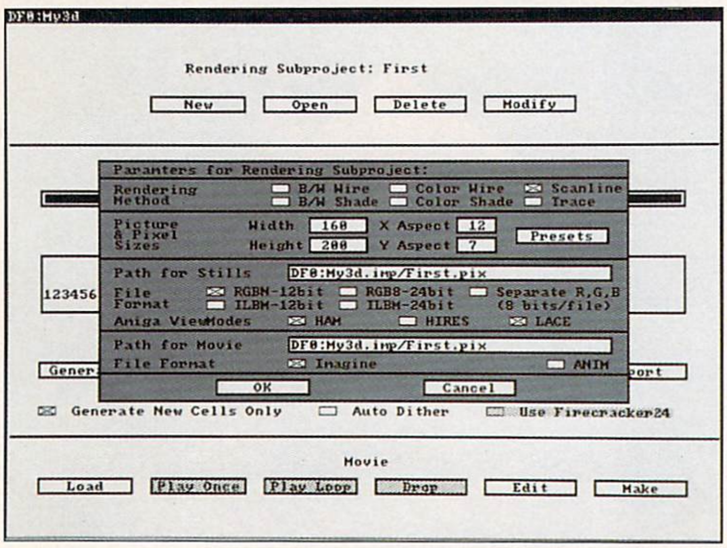


Figure 1. Return to Render: The Subproject screen.

The Cast of Characters

The Detail Editor, one of three editors in Imagine used to create objects for animation, lets you set the specific surface characteristics (attributes) of each object. If you are unfamiliar with object creation, read each step carefully and examine other references (see sidebar).

Use the menu's Editor-Detail [A-2] to enter the editor. The first object will be the gold orbiter. Select Functions-Add-Primitive from the menu, and click on Sphere. Change Radius to 30, Circle sections to 5, and Vertical sections to 2; then click OK. You should notice that this ten-sided object looks nothing like a sphere. Don't be afraid to change the numbers in these requesters to obtain unusual shapes.

The menu's Pick/Select-Pick Select [F1] will pick the object so you can change the color of the surface. Then select Object-Attributes [F7], which brings up the Attributes requester. This provides the controls to set a multitude of combinations for your objects. These attributes interact with each other to provide infinite control and you may need to experiment to gain a complete understanding. For now, just enter the values indicated for the specific attributes.

You set a value by first clicking on a specific box; then either enter numbers or move the sliders. Values on the top left can be from 0 to 255 for each of Red, Green, and Blue, providing a selection of 16.7 million colors. The approximate color is indicated in the box on the top right.

To enter the attributes for gold, click on the following boxes one at a time and enter the indicated values. Color: Red 255, Green 180, and Blue 75 sets the surface color to a gold tone. Specular: Red 255, Green 250, and Blue 220 produces a natural gold tone highlight. Dithering: use Value 50 to help blend the colors. Hardness: Value 190 gives a medium-size highlight spot. Shininess: Value 255 makes the surface very slick. The Index of Refraction at 1.75 enhances the metallic look when ray-traced. Phong should not be checked. When you finish, click OK.

Save your object to the disk with Object-Save [A-S] from the menu. Click on Disks, select your disk, the drawer named MY3D.IMP, and the objects drawer. Enter Sphere in the filename requester and click OK. Using the menu's Objects-Cut [A-K] will clear the work space.

The objects saved to disk are not specific to this project. As you create objects, save them into a library, which you can then use for other animations.

Now for the next actor, the first pyramid. Again, use Functions- Add-Primitive, click on Cone, change Circle Sections to 4, and click on OK. Now choose Pick/Select-Pick Select [F1] and then Object-Attributes [F7]. This time you will not need to change as many items. Change Color to Red 255, Green 0, Blue 0; the Specular to Red 255, Green 255, Blue 255; Hardness to Value 255; and Shininess to Value 255. Remove the check from Phong and click OK. Again, save the object with Object-Save [A-S], call it Red and click OK.

With the object still picked, select Object-Attributes [F7], click on Color and change Red to 0, Green to 255, and Blue to 0. Also click on each box in the first two columns and click OK. This will keep everything the

same except that you just changed the surface color from red to green. Select Object-Save [A-S], enter Green and click OK. Repeat this procedure, but change Color to Red 0, Green 0, Blue 255, and save as Blue for the blue pyramid. You make the yellow pyramid by changing the Color to Red 255, Green 255, and Blue 0. Save this object as Yellow. These four objects will be used to morph the pyramid from one color to the next. Select Object-Cut [A-K] to clear your work area.

The last object is the floor, which is essential because we want to see the spotlight as it follows the gold object. If the floor is not in the scene, the light continues into an empty space. Select Function-Add-Ground, Pick/Select-Pick Select [F1], and then Object-Attributes [F7]. Set the floor to a medium blue finish by clicking on Color and entering Red 0, Green 0, Blue 150; set Specular at Red 0, Green 0, Blue 255, and Hardness at Value 255. Remember to click on the specific box before entering the values. Save the object with Object-Save [A-S] and call it Ground. Use the menu to select Project-Stage, and click Yes to quit the Detail Editor.

Now for the Action

The Stage Editor is for creating animation movement and viewing perspective. It has the same types of orthogonal views: Top, Front, Right, and Perspective. Select Display-Camera View and Display-Coordinates. The Perspective window now shows the viewer's perspective and cursor positions in the top right-hand corner. Briefly, positions in this 3-D space are defined by coordinates on the x, y and z axes. The x axis runs side to side when viewed from the front. The y axis extends front to back when seen from the top, while the z axis is vertical when viewed from the front or right.

The center of this space is point 0, 0, 0. Negative values are to the left (x axis), the front (y axis), or below (z axis) the center point. The coordinates displayed at the upper right indicate your pointer position on the x, y, and z axes. Zoom in or out with Display-Zoom Out [A-O] and Display-Zoom In [A-I] at any time.

Clicking on a title bar (TOP, FRONT, RIGHT, or PERSP) will provide a full-screen view. Click on the bar again to return to the quad view mode.

First, you will create the number of animation frames. You can change this number at any time, but you will need to make fewer adjustments if you set this number first. This is where planning helps. Mine determined that 28 frames would fit on the disk and provide sufficiently smooth motion. Select Object-Action [A-A], the Action Screen, and enter 29 in the Highest Frame # requester. One extra frame will be used by some of the Imagine controls. Click on Done, and you will be back to the Stage views. Load the first object into the Stage by selecting Object-Load [A-L]. Now select Red and then click OK.

Next, create the path for the gold object to orbit the pyramid with Object-Add-Closed Path from the menu and click OK. Enter Path for a filename in the File requester. This object is used only to create movement and is not visible. A few changes are needed, so use Pick/Select-Pick Select [F1] to pick the path for modification. If you clicked anywhere before picking the path, use Pick/Select-Find [A-F], click on Path, and then press F1. ►

Help!

Impulse has an outstanding reputation for quality products such as Turbo Silver, Imagine, and Firecracker. To date, however, documentation and support have been questionable. Fortunately, Imagine has a good deal of after-market support. Below you will find some products and groups that can help.

Support Group
Turbo-Sig (international support group for 3-D graphics and animation; membership includes monthly newsletter)
1341 Ocean Ave., Suite 349
Santa Monica, CA 90401
213/398-7649

Books
The Imagine Companion
by David Duberman, author of the original Turbo Silver documentation
Motion Blur Publishing
915A Stambaugh St.
Redwood City, CA 94063

Software
Hot Key Authority (configuration files and utilities)
by Victor Osaka and Tim Donley
3-D Specialty Catalog
1341 Ocean Ave., Suite 349
Santa Monica, CA 90401
213/398-7649

The Buddy System (on-line help system)
Help Disk
6671 W. Indiantown Rd., Suite 56360
Jupiter, FL 33458
407/694-1756

Instructional Videotapes
Imagine the Possibilities
by Rick Rodriguez, author of the Imagine manuals
Impulse
6870 Shingle Creek Pkwy., Suite 112
Minneapolis, MN 55430
612/566-0221

Imagine - A Guided Tour
by RGB Images
Centaur Software
PO Box 4400
Redondo Beach, CA 90260
213/542-2226

Scale the path larger by first pressing S and dragging the mouse slowly up to the right until the box is slightly larger than the pyramid when viewed from the top. The bounding box approximates the size of an object. Any object can be scaled [S], moved [M] or rotated [R] interactively in this editor. Press the space bar when satisfied. Press M to move the axis of the path to the center of the pyramid in either front or right views. Press the space bar to retain the new position.

You can scale or move a path at any time.

Do not be concerned about exact placement, for you can scale or move this path at any time you wish. While you still have the Path picked, choose Mode-Edit Path [A-2]. The path now has three axes, the two on the path being control axes. Click on the axis to the far right of your screen in the right view, press M to move, and drag it down so that it is just above the bottom of the pyramid. Press the space bar to keep the position.

Now click on the left axis, press M, move it up slightly, and press the space bar. Use Mode-Pick Groups [A-1] after you are satisfied with your path. Click Yes to save the path and then OK. The difference between the two modes is that in Pick Group you are scaling, moving or rotating the entire object, while in Edit Path you are modifying the axes that control the path's slope, angle and pitch.

Use Object-Load [A-L] to add the Ground. Then choose Pick/Select-Pick Select [F1], press M, and move the ground down slightly in the front or right views so that it is below the base of the pyramid.

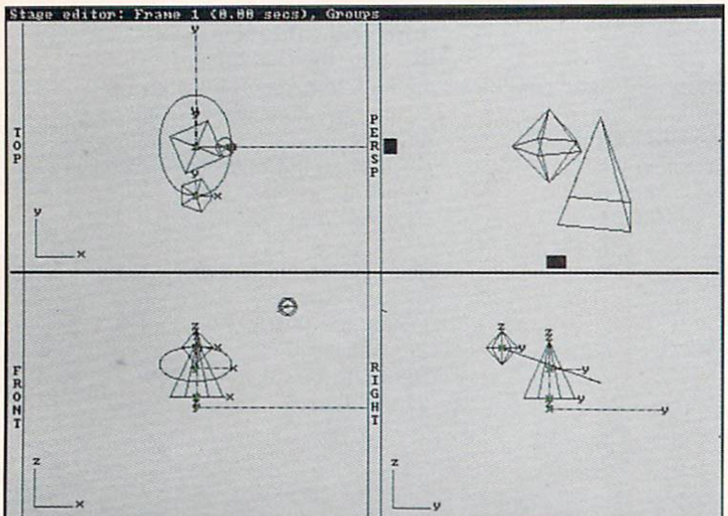


Figure 2. The quad-view Stage Editor.

Now add your lighting, first a fill light. Use Object-Add-Light Source, then press F1 to pick it. This time you can move the object to a specific location with Object-Transformation [A-T]. The Transformation Requester allows you to enter specific values for rotations, sizes, and positions. Click on Position and enter –100, –300, and 250 in the respective x, y, and z boxes. This places it in the left (negative x) foreground (negative y) and slightly above the pyramid (positive z). Click on Perform.

Now add another light—the follow spotlight. Using the same procedure, enter Position 50, 0, 250, click Size and change x to 20 and y to 80, click OK. The x value sets the radius and the y sets the focal length of your spotlight. Spotlights begin at the point set by Position, and will illuminate only objects that fall within the diameter size of the light.

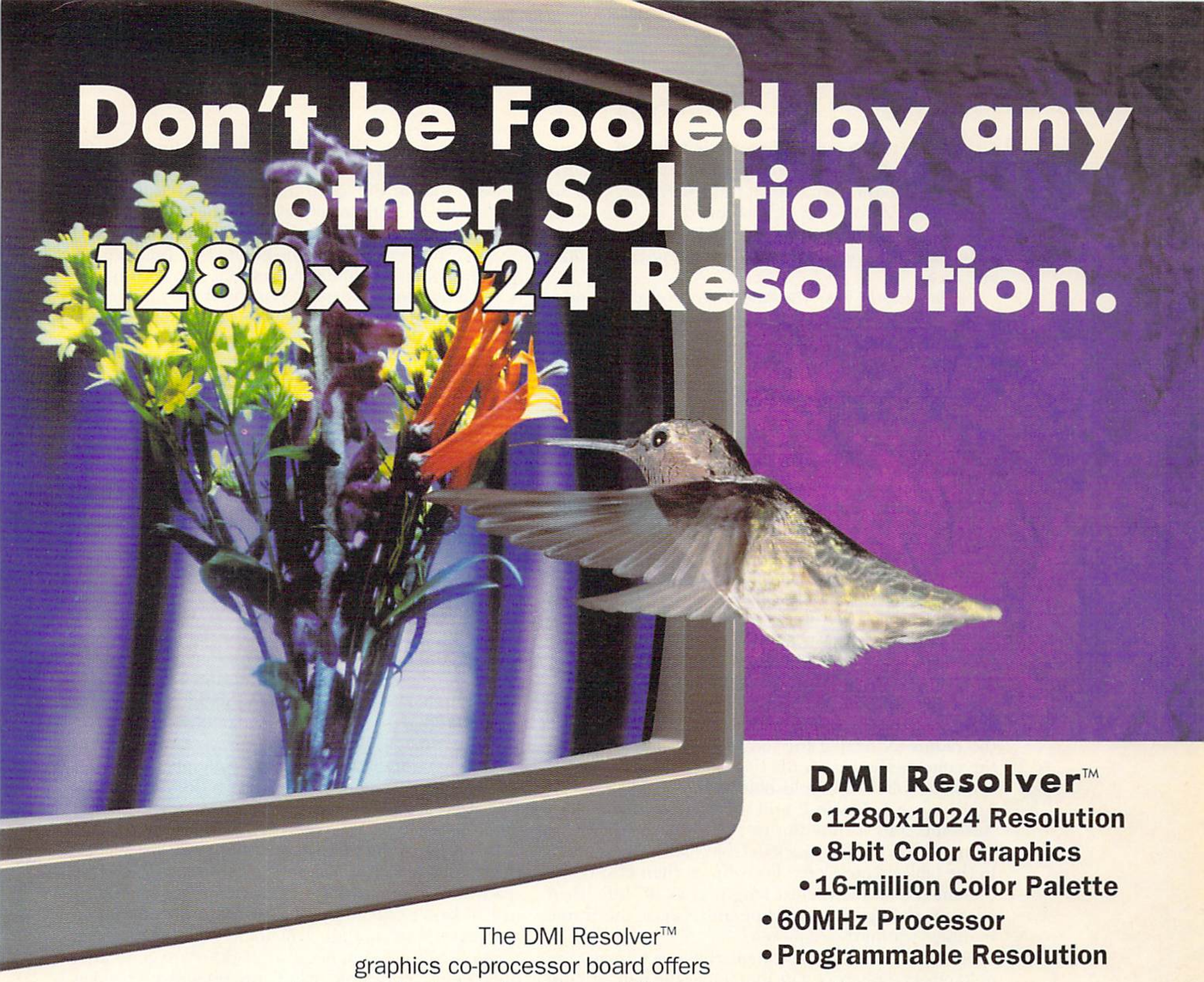
You can now add the last actor. Once again, use Object-Load [A-L] and select Sphere. Don't worry at this point that the objects do not seem to be in position. You will set this up in the Action Screen.

When you select Object-Action [A-A] to enter the Action Screen, you'll see your list of objects on the left side of the screen. The first two, Camera and Globals, are always in the list and will exist in every frame of the animation. Each object has six channels listed on the right side of the screen. The color bars indicate timelines (frame counts) of the specific channel. The frame numbers are along the top edge of the list of objects. Click under the frame numbers. Your position is the cross section of the red indicator on the frame numbers and the one on the channel names. Use these to select the proper frame and channel you wish to modify. The scroll bar to the far right scrolls through to the other objects. The buttons on the top permit you to select the type of modification you will make to a particular channel.

First, make the camera automatically point to the gold object by clicking Delete and moving the pointer to the Camera with the red indicators on Frame 1 and the Align channel. Click once. If you delete the wrong channel, click the Undo button. Now click on Add, move back to the Camera Align channel, click once on Frame 1, move to Frame 29 and click again. You should get a Specify Type requester. Select Track to Object, enter Sphere in the Object Name box, press enter, and click OK. You should now have a long timeline on the Camera's align channel. You can also adjust the focal length of the camera lens. Click on Info and then on the Camera Size channel at Frame 1, change X to 600, press Enter and OK. You now have a wider viewing angle.

The Global actor sets general (ambient) light, the horizon, and colors above and below the horizon, as well as adding star fields or an IFF for global reflectance. Click on the Global Actor channel, Frame 1, enter 40 in each of the Ambient color boxes, and click OK. This helps to add general lighting.

When you enter different objects on the same channel, they will change from the first into the next and take the transition frame count to make the change. This is how you will change the colors of the pyramid. So click on the Cone Actor channel, change End Frame to 1, press Enter and OK. Click Add, click once ►



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on Cone Actor channel Frame 2, and then on Frame 8. Select Green from the objects, and change Transition frame count to 6. Repeat this for Frames 9 to 15 using Blue, 16 to 22 for Yellow, and 23 to 29 for Red. The one limitation is that you can do this morph only if the objects have exactly the same number of points and faces.

While you still have the Add button selected, add a timeline on the Cone's F/X channel on Frames 2 to 29. You will use the Rotate F/X, but other F/Xs provided with Imagine produce even more stunning animations. A file requester will default to your Imagine drawer. Enter Im_Effects in the Drawer box, press Enter, click on Rotate and OK. To create one full rotation about the vertical (Z) axis over 28 frames, set the Start Frame to 2, the End Frame to 29, an x next to the z axis, and Degrees to 360.0000. Click on OK.

Use the scroll bar on the far right to move down your list of Objects until you see Lightsource and Lightsource.1. The first light you added is called Lightsource, and each subsequent one is numbered in order. The first light is the fill light and the default values will work for this animation. Lightsource.1 will be the follow spotlight. Click the Info button, click the Actor channel of Lightsource.1, select Conical and Cast Shadows, and change each Intensity value to 700. Click OK.

A conical light begins at a single point and reaches the radius (X size) at the focal length (Y size). Using the same method as for the Camera, you can make the spotlight follow the gold object. Click Delete, select Lightsource.1, Frame 1, and the Align channel. Click Add and add a timeline in this same channel for Frames 1 to 29. Click Track to Object and enter Sphere in the Object Name box. Press Enter, then OK. If any timeline is not the correct length, click on Info, then click on the specific timeline and adjust the frame numbers within the requesters.

You make the last movement changes to make the gold object (Sphere) rotate and follow the path around the pyramid. Click Delete, move to the Sphere, Frame 1, and the Position channel and click. Click on Add, and on the same channel add a line for Frames 1 to 29, select Follow Path, enter Path for Path Name, press Enter and OK. (Please note that Imagine has controls for acceleration and deceleration along a path, but these are not covered here.)

For the last bit of variety, add another F/X timeline for Frames 2 to 29, using the Rotate effect with default values. Refer to the specific instructions above for adding the F/X channel. This will make the object rotate about its x axis as it orbits.

Click on Done and you will be returned to the Stage Editor screen. The sphere should now be on the path, with the camera focused on its central axis. Now test the animation in wireframe mode. Select Animate-Make from the menu. A requester displays the Start, Stop, and Step frame numbers. Change 29 to 28, and then press Enter. The reason you use Frames 1 to 28 is to work around an Imagine quirk. Closed Paths begin and end at the same point. If you render every frame, the animation will have the object on the path in the same spot for both the first frame and the last. A similar thing is done for the Rotate F/X. Imagine begins the rotation in the very first cell and ends in the original position. The effect starts in the second frame and ends with one extra. This gives you the original position in the first frame and the correct ending position in the next-to-last frame.

Use the Animate-Play Loop to view the test. The Animation Control requester allows you to slow the animation down or even to step through it frame by frame. If the animation does not look like the design concept, make notes of errors, go back to the Action screen and review the settings for each of the objects with the above instructions in mind. When the wireframe animation looks correct, use Project-Save Changes [A-S], then Project-Project Editor to exit the Stage Editor.

LET'S SEE IT

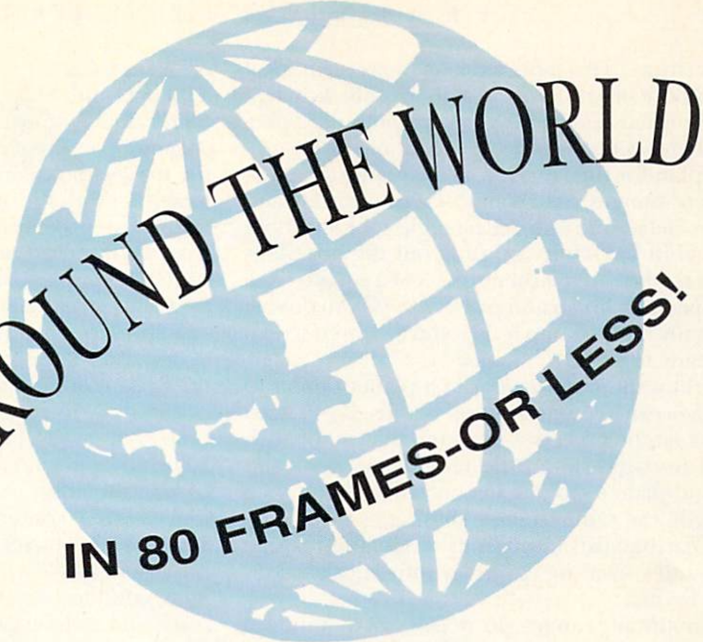
It is now time for the computer to work instead of you. While in the Project Editor, click on Range in the middle of the screen, change the End number to 28 and press Enter. The frame numbers should be highlighted. Click on Make near the bottom of the screen. Select Yes to let Imagine create a temporary Movie file, Yes for a looping movie, and Yes to Delete picture files.

The status of the render process is displayed at the top of your screen. It is complete when the Cancel requester disappears. Now there is time for a break.

When the Amiga finishes cranking out its calculations, click on Load. When the cursor returns, you are ready for viewing. Click on Play Loop and use the F1 to F10 keys to speed up or slow down the animation as it plays. Your spotlight will not have the shadow you see in the illustration because shadows are generated only when rendering in full ray-trace, which takes longer to render. To get these shadows, render your animation again, but change the subproject parameters to Trace. You can either create a new subproject or modify the parameters of the current one with the Modify button.

Now go ahead and modify other things in the animation, saving new versions and rerendering to your heart's content. As you experiment, you will learn more about the program and the types of things you like best. Imagine offers infinitely more than we can cover in one article, but there are many other resources you can turn to. Your imagination is the only limit! ■

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AROUND THE WORLD IN 80 FRAMES-OR LESS!

It took eons for our earth to evolve, but with DeluxePaint III and a little imagination, you can create your own world in considerably less time.



On the theoretical level, "world building" is a fascinating thought experiment. Building your own planet using an Amiga, however, can be an exciting *practical* endeavor. While this article shows you how to do it with Electronic Arts' DeluxePaint III, I will also give you some ideas that go beyond mere technique to make it more rewarding.

At the annual CONTACT conferences—which bring together prominent scientists, artists, and science-fiction writers—participants create a set of interesting cosmological parameters. Using scientific principles, they then evolve a planet and biosphere within those constraints. Disciplined world building is hard play, and I find the Amiga an ideal visual tool to aid in such projects. For our experiment here, I will show you how to use DPaint's animation and painting features to create a planet and set it spinning in space. (CONTACT's address is 1412 Potomic Ave. SE, Washington, DC 20003.)

In the Beginning...

The first stage in constructing your planet is to paint its surface features on a map representing both hemispheres—as though a globe were unwrapped onto a rectangle. The result is much like a Mercator projection (named for the 16th-century Flemish cartographer who revolutionized early navigation methods), which renders the planet on a rectangular latitude-and-longitude grid, with the navigational advantage that any straight line represents a constant compass course. The problem with this type of map is that it radically distorts land masses near the poles. (As countless school children might attest, the ubiquitous classroom Mercator projection of the world gives one the impression that Greenland is larger than Africa and that Antarctica is shaped like a ►

By Joel Hagen

ILLUSTRATED BY LAURA JOHNSON

long, wavy stripe.) This distorted map, however, is ideal for our purpose of wrapping a brush to a filled circle.

In the finished animation of your spinning globe, only one hemisphere will be visible at any given moment. To plan for this, make your map a rectangle of two adjacent squares. Set DPaint's Prefs to FastFB and Be Square. Select the Filled Rectangle tool and hold down the Shift key while you drag out the box. This constrains the box to the dimensions of a square. Pick up the square as a brush and press SHIFT-X to double it horizontally. Then stamp it down on a cleared screen and get ready to paint.

You might want to make your first planet similar to Earth, with oceans, continents, and islands. If you need some ideas on the processes in nature that shape such a planet's features, do a little reading on planetary geology and plate tectonics. On an active planet such as our Earth, the same tectonic shifting of plates that produces earthquakes also builds mountains, as one plate separates from or crumples into another over millions of years.

Thus, mountain ranges do not occur as random lumps, but as harmonious lines of relief that clarify the dynamics of the crust. These mountains, in turn, form barriers and channels to meteorological processes that affect the landscape colors you choose. For example, wind-driven clouds pile up on steep slopes (white and brown), unload their rain in that region (green), and may leave land beyond quite arid (tan and ocher).

Color Your World

There are any number of ways to paint the surface features of the planet. Try this quick technique to give a convincing appearance of contour and elevation with natural transitions of colors. For best results, build a range of 16 to 24 colors in the Palette requester and use the Spread feature to create a smooth sequence of gradation. An easy range to create is very light yellow-brown at one end and dark brownish-green at the other. (See Figure 1.)



Figure 1. The Initial map, showing pallette construction.

Fill the map with the darkest color in the range, and, with the left mouse button, choose any other shade within that range as the foreground color. Then, using the right mouse button, choose the surrounding screen color—a color outside of the range you have made—as a background. Make a half-inch round brush and press F5 for Shade mode.

Painting in Dotted Freehand mode, you can brighten the map with one mouse button and darken it to the base color with the other. If you will think of the lighter colors as representing high elevation and the darkest color as the ocean, you quickly begin to see convincing contours appear. Use a very small brush for such final details as river valleys, fjords, and islands (enlarging and shrinking the brush with the + and – keys).

If you do not want to shade an area all the way to the darkest or lightest color, change the range settings occasionally to control the effect of the Shade operation. Many artists forget that the range settings can be adjusted again and again during a painting session to control the effect of the tools. You can use the Blend tool to refine contours after they are roughed in with Shade, and you can fill the darkest areas with blue to turn them into oceans. In my illustrations, I've used a more complex series of palette spreads to color landscape and give variation to terrain. You can make such changes even after the painting is complete.

Make It Go 'Round

The left edge of the map must perfectly match the right if it is to have continuity as a globe. This is easier than it appears. Simply cut a one-inch vertical strip from the right edge of the map with the right mouse button, removing it from the background. Carefully stamp it down at the left side of the map and use Blend to smooth and adjust the resulting seam. Because they are edges of the same cut, the new left and right sides of the map make a perfect match. When you are satisfied with your map, save it to disk.

For the next phase, you need to make a couple of measurements and place some markers. To mark the middle of the map, use the Brush Selector to pick up a full strip of the top edge of the map. Press the h key to halve that brush and carefully stamp it directly above the map, aligned with the left edge. Use the Straight Line tool to make a mark above the middle of the map for future reference. Turn on Coordinates from Prefs and, using the Straight Line tool, stretch a horizontal line precisely from the left edge of the map to the right edge. Now, make a note of the x coordinate at the top of the screen and undo the line. Bring up the Move requester from the Anim menu and enter the map width (262 in my example) in the Distance box under "X." (You must use an even number for the width, or you will see gaps in your animation.)

Exit the Move requester for the moment and pick up the map—including a piece of the line you drew as a halfway mark—as a brush. Clear the screen and go to the Anim menu to set the number of frames. Ten frames will do, but if you have enough RAM, 30 to 60 will make for a smoother animation.

Returning to the main screen, you will be on frame 1 of the animation—a blank screen. Stamp the brush down in the center of the screen to let the Move requester locate it, then select Undo to remove the image. Return to the Move requester, where the horizontal movement of the map is already entered. Make sure that the entry in the Count box equals the number of frames in the ANIM, and click on Preview to verify that all is well. You should see the map, or a box represent-

ing it, move frame by frame off the right side of the screen. Now select Draw, and DPaint will create the ANIM frames.

Play the animation to verify that the map slides smoothly across the screen. Eventually, you will pick up a square ANIMbrush to enclose that portion of the screen occupied by the right half of the map as it appears in frame 1. Envision that brush as a window on a hemisphere of the planet. Run the ANIM a few times and see how the map slides out of the imaginary window, leaving space behind. A second copy must fill this space to provide continuity as the globe rotates. This is why the left and right sides of the map must match.

Globe Trotting Made Perfect

You can use the Move requester to make a second copy of the map follow the first (see Figure 2). Start the second pass on frame 1. You may need to shift the brush handle with ALT-X. Carefully stamp the map brush at the left edge of the map that is showing in the frame, click Undo to remove the image, and return to the Move requester. Using the settings already in place, choose Preview to confirm the motion and path. As shown in Figure 3, the second map will join seamlessly with the first and trail it across the screen. Select Draw to complete this phase.

Return to frame 1 of the ANIM and select Anim Brush Pickup from the Anim menu. The next step has to be precise. You must cut out the right half of the map with no background beyond the edge of the brush. Use the midpoint mark for reference in starting at the upper-left corner of the brush, and drag the box over the right half of the map. The lines of the cutout box must be placed *exactly* on the edge of the map—not even a single pixel beyond. Release the mouse button to pick up the ANIMbrush. You will see the map advance through the window of your ANIMbrush box, and, at just the right moment, the second copy of the map will appear and follow the other along.

Return to Frames in the Anim menu and select Delete All. Clear the screen and select the Filled Circle tool. Make sure you are in Solid mode in the Fill requester and drag out a filled circle the size you want the planet to be—a bit smaller than the height of the map. Go back to the Anim menu, select Frames and reset the number to what you originally had (30 in my example). You now have that number of frames containing the blank circle.

Next, summon the Fill requester by pressing SHIFT-F and then select Wrap. Return to frame 1 of the ANIM, hold down the Left Amiga key, and fill the circle. The ANIMbrush will automatically advance with the ANIM frames. You can take your hands off the mouse and key board while DeluxePaint wraps the map window to each ANIM frame.

Press the 4 key to play the ANIM in a continuous loop and adjust the speed with the Cursor-Up and Cursor-Down keys. At this point, you can pick up the planet as an ANIMbrush and save it to disk. You can put the planet into a "technoframe," as I have done in the illustration on the opening page of this article, or use the Move requester to move it through space or to zoom in and out. You can add the planet to other animations, or bring in 3-D or ray-traced spacecraft. (The same ANIMbrush wrap technique is also useful for rotating text effects, titling, and a host of other applications.)

You might also use the planet animation as part of a larger project, including detail maps, landscapes, dioramas, and paintings of alien life forms. With the help of a sound digitizer, you could add alien animal sounds or speech. Such a project can be as whimsical as you like, or it can be the core of a rigorous exercise in creative interdisciplinary play. A family, class, or scout troop can use a world-building project as a connecting thread to explore astronomy, biology, geology, anthropology, art, and physics. In fact, the Smithsonian Institution recently granted the CONTACT organization funding for just such a special curricular project at the junior-high level.

The arts and the sciences link in powerful ways. World building is fun and provides an example for young students of how everything they learn interrelates. Further, as a world builder, you discover that in order to build a great alien planet, you must first understand your own. ■

Joel Hagen is the author of AmigaWorld's *regular column, "Accent on Graphics." Write to him at 10512 Sawyer, Oakdale, CA 95361.*

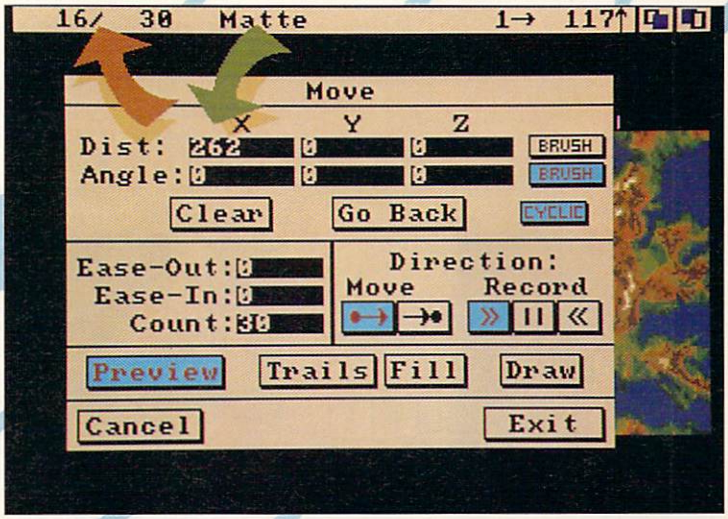


Figure 2. The move requester settings for the second pass.

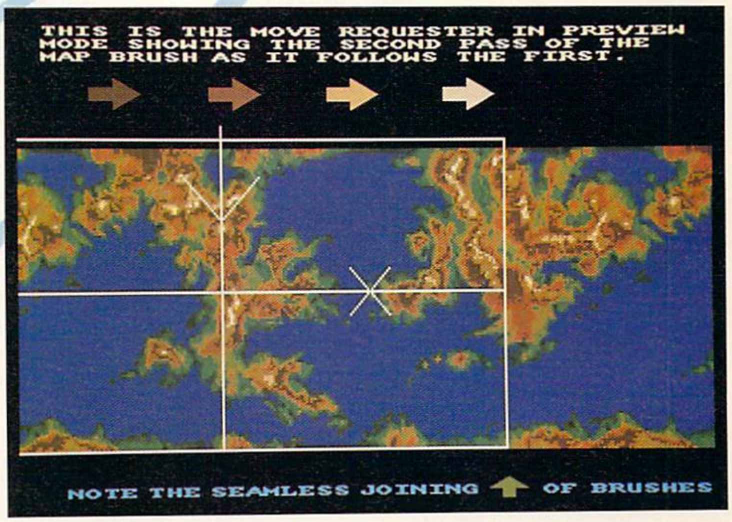


Figure 3. A look at the second pass—from preview mode.

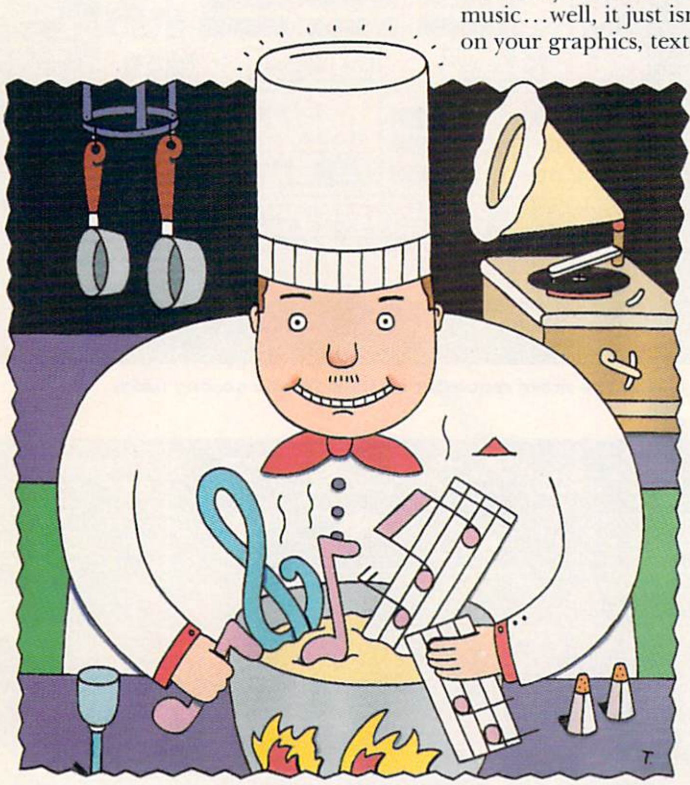
Accent on Audio

Music and sound can be just the spice to liven up your multimedia presentation. Here's some good advice about the 'utensils' and 'recipes' you'll need to get the mix right.

By Geoffrey Williams

BRECHT WITHOUT WEIL? Lerner without Lowe? Johnny without Doc Severenson? No way...it just wouldn't "sound" the same!

And if you're creating multimedia presentations without using sound or music...well, it just isn't multimedia. While you may have a good handle on your graphics, text, animation, and video, if you neglect the potential that sound and music offer for enhancing your production, your show may turn out pretty flat. Let's examine some tools and tips to help make your multimedia presentations as pleasing to the ear as they are to the eye. *(For information about contacting the developers of products mentioned in this article, consult the "Manufacturers'/Distributors' Addresses" list on p. 118.)*



Digitize and Synchronize

Your Amiga does an excellent job of manipulating and playing back digitized sounds. It accomplishes this through a process called "sampling." Simply put, the computer can "listen" to any sound and turn it into digital information—a series of bytes it can store. This data is then fed back through a digital-to-analog converter (DAC), an amplifier, and speakers to turn it into sound again.

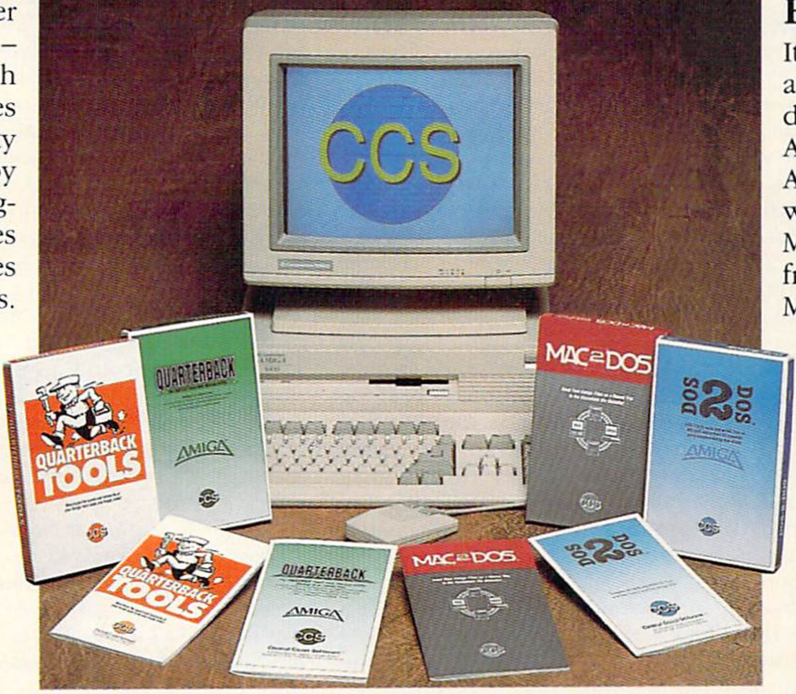
The first part of the process is performed with the help of a sound sampler—or audio digitizer. Ordinary analog sounds are converted to digital information through the sampling hardware's analog-to-digital converter (ADC). There are several very competent audio digitizers available for under $100, the most popular of which is probably ***SunRize Industries*' Perfect Sound 3.0** ($99.95).

Most audio digitizers come with some type of sample-editing software, but, in my opinion, you are much better off using ***Aegis / Oxxi*'s AudioMaster III** ($99.95—see Mar. '91, p. 13, for a complete review). It is a full-featured audio editor with a host of capabilities, and it supports a wide variety of other sampling hardware (in addition to Perfect Sound). It allows you to add real-time echo and flanging, and it uses a low-pass filter to remove noise and aliasing distortion automatically. You can also perform all the ►

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basic editing features: cut and paste, copy, and zoom in for fine editing. It even provides a separate buffer that is much like an audio version of the spare screen in DeluxePaint.

When you are digitizing a sound for use in your presentation, you should capture ("sample") it at the highest resolution your digitizing software can handle. This will give you the best quality when that sound is played back. Sampling a sound at a high sampling rate—the number of times per second your computer takes the "picture" of that sound—records it most accurately (hence the higher resolution—and greater fidelity—when that sound is played back). Unfortunately, this also results in a very large sample, which, if you are using several samples in your presentation, may quickly exceed your system's memory capacity.

> *If you use copyrighted music without licensing it, you are breaking the law.*

The best solution to this problem is to use AudioMaster's "resample" capability. This reduces the sample size without reducing the sound quality (up to a point) by resampling the sound in memory. Many samples recorded at 20,000 samples per second (sps) can be reduced in AudioMaster to 8363 sps—dramatically reducing the sound-file size without appreciable loss in quality. This method provides superior quality to sampling at a lower rate in the first place.

Another memory-saving feature of AudioMaster III is its ability to build sequences from a single sample. Using its Sequence mode, you can set up to 999 loop points for any given sample and have the sequence play the loops in the order you set them. When using long samples, such as continuous music where a great many phrases are usually repeated at various points in the sequence, you can simply loop them at the appropriate points and cut down significantly on the length of the sample.

Unfortunately, this looping capability is not yet a part of the IFF sound standard, but you can still use it with programs such as ***Commodore***'s **AmigaVision** ($149.95 or bundled free with some new Amiga systems) and other multimedia-authoring programs that allow you to run external programs. Because AudioMaster III comes with a player program for playing looped sequences, you can run this player as a background task from within AmigaVision by using the external-program command option.

One potential problem (and another AudioMaster solution) to keep in mind is that if you are playing music and want several sounds to play simultaneously, you may not have enough sound channels (there are only four). It is possible, however, to make a digitized sound track that contains all of the sounds by using only two sound channels (or just one, if you are not using stereo). This also permits you to synchronize sounds (although not to frame accurately) with animations in programs that let you start a sound and an animation at the same time, but in which you cannot play the sounds on a specific frame.

Here's the trick: Load your animation into your multimedia software and carefully time it from the moment it starts to the points at which you want your sound effects. Load the sound effects into AudioMaster III by appending the sounds together. Add the appropriate amounts of silence from the beginning and between the effects by using the Add Workspace option. Turn on the Time Coordinate display so that you can edit the length of these silences with better than a hundredth-of-a-second accuracy.

You now have a sample that starts playing silently until the time the first sound effect should be heard. More silence ensues until the next effect, and so on for each effect. You can even add additional sounds that can overlap those you have already added. When you are finished, you will have a single sample that uses only two channels but includes all of your audio—in stereo—for an entire sequence. You may have to tweak it a couple of times to get the timing just right, but the method does work.

Another excellent tool for editing sound samples for use with animation sequences is ***Hash Enterprise***'s **Animation:Soundtrack** ($119.95). Combining full-featured sample-editing and synchronization capabilities, it simply can't be beat for synchronizing sound with animations. It lets you edit and synchronize your sound while you play your animation. This not only speeds up the process of audio syncing considerably, but it also makes such complex tasks as lip syncing a snap, because you can both edit and choreograph the sounds from within the same program.

Soundtrack allows you to load your samples into memory, and it then assigns them in whole or in part to be triggered at specific frames. You can play back the resulting sound track and dub it onto video, or you can play it simultaneously using the program's own ST player program. The latter is also fully multitasking, so that you can actually drag and pull down the screen to get to Workbench while the animation is playing. This feature is a favorite of mine for demonstrating the power of the Amiga.

(Editor's Note: Another promising stand-alone sample editor was announced just as this article was going to press. ***SunRize Industries*'** **Audition 4,** *$99.95, is reported to have an impressive list of features, including sequenced loops; such real-time effects as echo, fade, and flange; and such editing functions as cut, copy, paste, filter, smooth, and—notably—resample. Also, Audition 4 supposedly will allow you to record directly to floppy disk.)*

BORROWING VS. MAKING YOUR OWN MUSIC

Often in your presentations you need only a short bit of music to act as a bridge between sequences or as a flourish for an animation. In this case, it makes sense to digitize the music and incorporate it as a digitized sample. Keep in mind, however, before you start sampling your favorite records, that if you use copyrighted music without licensing it, you are breaking the law. The American Society of Composers, Authors and Publishers (ASCAP) is cracking down hard on those who abuse these copyrights. I know of one multimedia ►













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producer who recently was nailed at a conference with a client at a major hotel, and he wound up paying some substantial penalties.

There are many music libraries that you can license on a yearly basis, and there are also buy-out collections where you can buy the music and use it indefinitely for your projects. Look in any video magazine for ads for production-music houses. Remember, too, that buying music at a record store does not give you the right to use that music, even if the production you are doing is being offered for free. If you want to use prerecorded music, you must pay a licensing fee for it.

AW on Audio

FOR MORE INFORMATION on Amiga sound capabilities, audio-digitizing hardware and software, sampling tips, audio-synchronizing techniques, or MIDI, consult the following articles and columns that were published in past issues of *AmigaWorld*.

References to previously published reviews of individual products are contained in the article itself.

"Talkin' Electronic Music Blues," May '91, p. 18.
"Sound Design," Mastering Multimedia, Mar. '91, p. 72.
"MIDI and SMPTE Compatibility" (time codes), Jan. '91, p. 76.
"MIDI Sequencers" (buyer's guide), Dec. '90, p. 43.
"Now Hear This!" (sampling tips), Mar. '90, p. 20.
"Play It Together, Sam" (audio syncing), 1990 Video & Animation Special Issue, p. 68.
"SizzlingSounds"(audiodigitizers/sample-editing software), Oct. '89, p. 48.
"The Sound of Music" (Amiga sound/MIDI music), May '89, p. 16. □

If you can write your own music, or know people who can, you may be better off. If you do not own MIDI-compatible keyboards or other instruments, though, your choices are limited (we will discuss MIDI later on in this article). **Deluxe Music Construction Set** ($99.95, ***Electronic Arts***) and other composition programs that use standard IFF instruments do not provide professional, high-quality sound. But if you want your music to come straight from the Amiga, there is really only one choice: **Sonix** ($79.95, ***Aegis / Oxxi***).

Sonix is a poor composition tool—lacking such important features as the ability to create triplets—but it is capable of creating outstanding sound that is as good as many MIDI instruments. Using its custom-instrument format, you can obtain amazingly good quality that does not sound "computerized." You are limited to the standard four-channel audio, but with the help of AudioMaster, you can create Sonix instruments that are composed of more than one sound so that a single note can be playing two or more different instruments using only one audio channel.

One particularly nice touch about Sonix is that you can tune *any* sound in AudioMaster to use as an instrument in Sonix. For example, my group turned an explosion into an instrument that was played as a single note within a Sonix sound track. You can also incorporate samples of vocals into your Sonix scores. You can even create very long scores with several instruments and vocals without consuming large amounts of memory. Such a score will sound like one long digitized sample, even though it is made up of digitized bits and pieces. As awkward as Sonix can be at times, it can create some very impressive music.

AmigaVision and most other multimedia programs, however, do not support the Sonix file format. But, again—as with AudioMaster—you can use AmigaVision's external-program command to run the Sonix player program. This will play the music in the background while the rest of your show continues. I did, however, encounter one problem worthy of note. In some cases, it may take a second for the sound channels to be released before a sound effect can be played. Even though the music had stopped, the sound channels were not released immediately.

Maximize with MIDI

Although programs such as Sonix are very versatile, they are still bound to a large extent by the recording and playback limitations of the Amiga's native sound architecture. This does not mean, though, that the Amiga is not capable of producing high-quality audio. It can...with the help of MIDI.

While there is not enough space here to go into a full-scale discussion of MIDI, we can take a look at how it can contribute to your multimedia sound solutions. (See the "*AW* on Audio" reference box for *AmigaWorld* articles and columns covering MIDI in more depth.)

MIDI (Musical Instrument Digital Interface) is a serial interface that uses five-pin black-and-silver cables to carry a wide range of MIDI data back and forth between the computer and MIDI-equipped synthesizers or sound modules. It acts as a standard protocol to let your Amiga (or any computer) talk to and control electronic musical instruments. MIDI specifications provide for 16 discrete address channels, each of which can send a separate set of information to its own synthesizers and samplers. This means you can have 16 discrete performances occurring simultaneously—a significant boost over the Amiga's native four-note capability!

Another advantage of the MIDI standard is that there is also a MIDI music file format. You can load music created on an IBM or Macintosh into your Amiga if that program and yours both support the MIDI file standard.

There are many other advantages in having the Amiga play music through MIDI, and most of them are of particular interest to multimedia producers. These involve a variety of ways to accurately synchronize the music to the visuals (or vice versa). A number of MIDI sequencer programs for the Amiga can synchronize music to both MIDI time code (MTC) and SMPTE time code (the Society of Motion Picture and Television Engineers standard).

These include ***Blue Ribbon SoundWorks***' **Bars&-Pipes Professional** ($379—reviewed Jul. '91, p. 66), ***Dr. T***'s **KCS 3.5 Level II** ($400—reviewed Jul. '90, p. 80), ***PassPort Design***'s **Master Tracks Pro 3.0** ($395—reviewed Jan. '90, p. 62), and ***MicroIllusions***' **Music-X** ($299.95—reviewed Oct. '89, p. 18). (Also consult the "MIDI Sequencers" buyer's guide referred to in the "*AW* on Audio" box.) ►



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Because Bars&Pipes Professional (through its $59.95 add-on **Multi-Media Kit**) also supports ARexx, you can integrate it into a multiprogram environment—which opens even more possibilities for the multimedia producer. You can load, play, start, stop and synchronize music with such ARexx-compatible programs as AmigaVision, **CanDo** ($149.95, ***INOVAtronics***), and even **Elan Performer 2.0** (now hard to find). Or, you can control such ARexx programs from within Bars&Pipes. Also, because Bars&Pipes will keep track of SMPTE time code if you have a time-code reader, you can have AmigaVision use ARexx to read a time code number from Bars&Pipes and synchronize a sound, graphic, or event to a specific frame of video.

ARexx control is particularly important if you are using the current version of AmigaVision, which supports only four channels of MIDI. This makes MIDI applications useless, because very few compositions use only four voices. The true beauty of multitasking and ARexx is the ability of one program with limitations to be able to control another that will make up for those limitations. Thus, Bars&Pipes does nicely as a companion music player for AmigaVision.

Bars&Pipes is a visually oriented program that uses a pipe metaphor to graphically show the flow of the music. You can drag special effects icons onto certain points along the pipeline. These effects include a keyboard splitter, event and note filters, randomizer, transposer, harmony generator, quantizer, and many more. You can even create your own effects—each with its own icon—and then drag them into place at the appropriate points.

The program is very flexible, so it is possible to work with music that has nonstandard key signatures. It also has high-resolution timing, with 192 clocks per quarter note, as well as standard MIDI timing. You can even print out a lead sheet and hear notes as you edit them. While there are many excellent sequencers for the Amiga (and I do like Music-X very much), Bars&Pipes' strong visual interface and ARexx capability put it at the top of the list for multimedia producers.

There are a lot of very good sound and music tools available to the multimedia producer. Most multimedia packages do support digitized sound. Many have a problem with music, however, as they cannot load and play standard MIDI files. Software publishers are working to increase the audio sophistication of their multimedia packages, and these programs should soon catch up with the power of the current batch of sound-editing and MIDI composition software. When they do, it will move Amiga multimedia presentations onto a very exciting next level. ■

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Creation by Evolution

3-D GRAPHICS FOR 2-D THINKERS

If you've dabbled with straight 2-D paint and drawing programs—but shied away from 3-D modeling and animation software—here's a trail-blazing introduction to help you get in the right mindset to make the evolutionary leap.

By Gene Brawn



FROM THE EARLIEST cave-wall drawings at Lascaux and Altamira 20,000 years ago to abstract impressionism and post-modern pop in the late 20th century, the artist has struggled with the same dilemma: How do you go about the task of representing a three-dimensional world on a two-dimensional surface? Power to sculptors, architects, and junkyard impressarios for answering the question. But how do the rest of us deal with the basic problem—despite whatever advances, or just plain tricks, with trompe l'oeil, the-medium-is-the-message 3-D canvases, or computer-generated 3-D object modeling?

Focusing on the computer side of things, at first the new medium was easy for artists to understand because it mimicked the way they normally worked. Although they were painting with light, not pigment, the tools were familiar and the computer could even automate some of the more tedious tasks. Painting and drawing programs were welcomed as great boons to the artist.

The digital wizards were not finished yet, however, and soon *3-D modeling* was unleashed on an unsuspecting art world. This new technique produced amazing, alluring, and compelling images, but the processes and techniques used to create them were so arcane that even programmers had problems understanding the concepts. Eventually, improvements in software design and user interfaces made this powerful new medium a practical tool for the artist...at least we think so.

Contemplating the Digital Canvas

For most traditional artists, it is a rewarding process to see the mind's image pass directly to the canvas. 3-D computer images, on the other hand, while appearing to break a dimensional barrier, are electronic, not tactile; your canvas is inside a glass tube, and worse yet, you need an apprentice—the computer—to guide the mindless electrons painting the image on your screen. You might call this "art by remote control."

Relinquishing control to a machine is difficult, if not repugnant, for most traditional artists, but no matter how much you ►

ILLUSTRATED BY RICHARD DOWNS

wish for it, computers cannot read your mind...yet. You will have to learn to speak the machine's language if you want to create images in this exciting new medium. Far from arcane, in many ways the new medium is easy to understand and use, but first you must step out of your 2-D straitjacket and adjust to the new point of view.

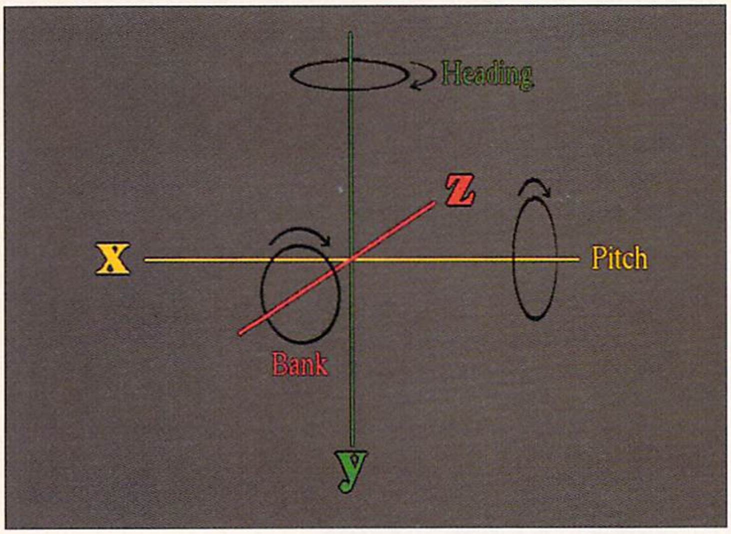


Figure 1. 3-D modeling adds a third—z—axis to the traditional x and y dimensions of 2-D drawing.

To ease your journey, I will provide you with some examples that better illustrate what is going on behind the screen. Because the Amiga boasts so many different 3-D software packages, I cannot possibly cover all the different variations on the theme. This article, then, is necessarily an overview of the topic, and while the terminology and methodology of a particular program may vary from my general explanations, the underlying ideas are valid across the range of products available. So take off your beret, put down your brush, and prepare yourself for a wild ride through the brave new world of digital art. *(Editor's Note: If this article whets your appetite for further, and more specific, 3-D exploration, we heartily recommend that you take a look at two features we've published recently on Amiga 3-D graphics software to get a feel for the individual programs out there on the market: "The* AW *User's Guide to 3-D Software," Mar. '91, p. 22, and "The State of 3-D Art," May '91, p. 26.)*

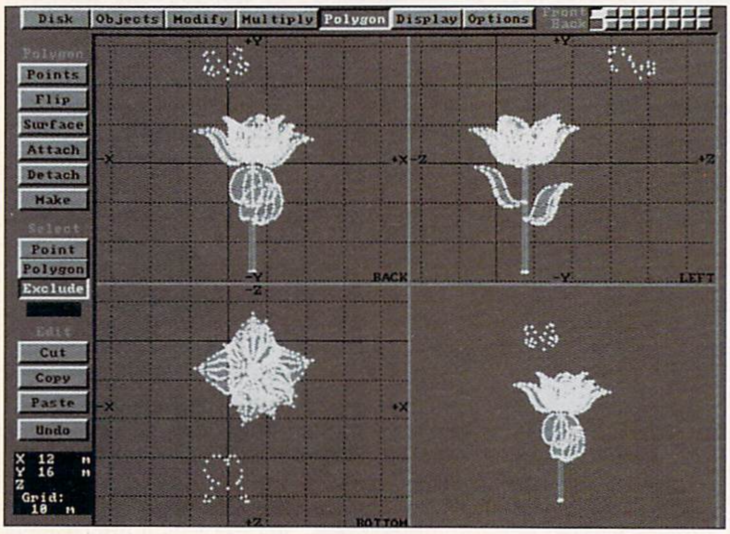


Figure 2. LightWave 3D, like many modeling programs, offers the familiar 2-D tri-view—plus a 3-D representation in the lower-right corner.

The Creative Director

Now that you have surrendered yourself to this strange new way of making art, it is time to meet your crew of new assistants and to examine the role each plays in your multidimensional productions. (Although we are not talking multimedia or video here, think of yourself for this section more in terms of film production than traditional painting or drawing—try it!) First off, you are like a producer. Initially, you need some objects, the foundation of 3-D imaging. Think of them as your actors, but—unlike in Hollywood—you cannot just call a casting agent and order them up; instead, you must create them—either from scratch or from primitive shapes from your program's library.

Once your cast is assembled, you assume the role of a scene designer. You define the size of your set and whether it is indoors or outdoors, and then add the props and paint. Next, as the lighting designer, you light the set and determine who gets the spotlight and who stays in the shadows. Then, as director, you place your actors on the set and rehearse their moves. Finally, as the cameraman, you choose the best lenses and shooting angles and prepare for that fateful moment when you shout, "Ready when you are, C.B.!"

Artist's Models and Architects

Just as in a paint program, you use points and lines to define the shape of your three-dimensional object, usually in a separate part of the program called a modeler. Unlike its 2-D cousin, however, the 3-D modeler adds a third, z, axis to the standard x and y dimensions. In other words, besides the left-to-right horizontal (x) and top-to-bottom vertical (y) lines, the modeler has a third (z) direction perpendicular to both the x and y axes (see Figure 1). The addition of this third axis is the key to 3-D software. (While some applications orient these three axes differently, the perpendicular arrangement never varies.)

Some 2-D paint programs, such as DeluxePaint, also offer this third dimension, but with limitations. For example, if you create an image of a cube and then rotate it on the y-axis, it is instantly apparent that the cube is an illusion and has no depth. The program is designed to know about 3-D space, but the objects in it are always flat.

Changing metaphors for a moment, think like an architect while creating a 3-D object. Working from your "blueprints," the first thing you must do is to construct a skeleton, or wireframe, for your object. This framework resembles the unfinished steel skeleton of a high-rise building before the walls are hung from it. Many 3-D software packages use polygons to define this structure, and although lacking color or texture, the basic outline is apparent. Polygons can assume any shape as a group, but are always composed of triangular or rectangular facets.

The drawback to this technique becomes apparent when you try to create smooth curves. The polygons al- ►

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ways have straight edges. In order to create a smooth surface, the polygons will have to be very small and numerous. Adding, or subdividing, thousands of polygons can get tedious very quickly. (Very few Amiga



Figure 3. Texture mapping can quickly turn an ordinary object, such as a simple sphere, into a richly detailed globe like this one.

applications based on this approach can offer you any help here.)

As a result, some new 3-D modeling programs using algorithmic splines, not polygons, were developed to alleviate this time-consuming procedure. Instead of building your shape from little triangles, you use splines to draw the shape as if you were drawing it freehand, and the software does the rest. Not everybody, however, jumped on this bandwagon, perhaps because they felt that they were sacrificing the power and precise control inherent in the earlier method.

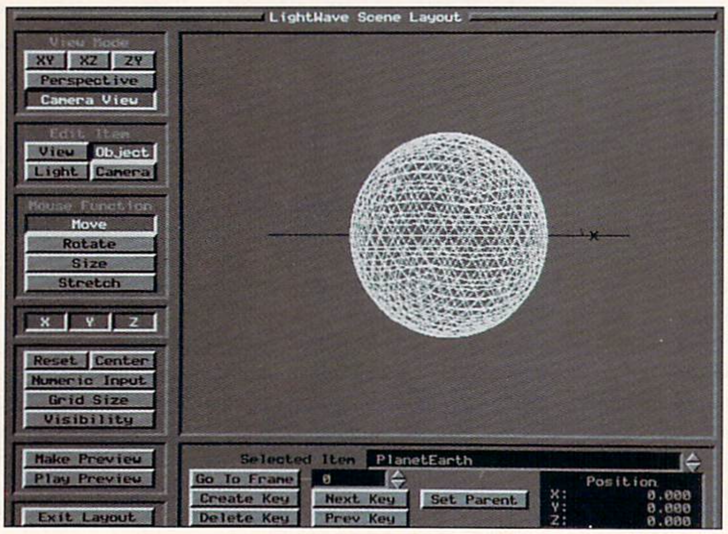


Figure 4. A good scene-layout editor allows you to work in either 2-D or 3-D to place objects, lights, and cameras.

Whatever the program's approach, the typical interface of a 3-D modeling program can take some getting used to if you are not a draftsman. Figure 2 shows a fairly representative "tri-view" screen from NewTek's LightWave 3D modeler program (bundled with that company's Video Toaster hardware). Although, internally, the computer is manipulating a true three-dimensional object, so to speak, the image is usually represented two-dimensionally on your monitor. The program generally provides three views of the object: a front or back view, a top or bottom view, and a side view. In the lower-right corner of the screen is a true 3-D representation of the current object.

If you modify one of the views in the tri-view, the others are instantly updated to reflect the new configuration. While it may seem more intuitive to manipulate the three-dimensional representation directly, many artists find the 2-D tri-view essential for the exactness it provides in allowing them to observe the precise relationship of planes and points that is so difficult to see in the 3-D version.

Adventures in the Skin Trade

Now that you have completed your object's skeleton, it is time to flesh it out. In 3-D modeling, this binary skin is called a surface or facet. Depending on the package you are using, this fleshing out is accomplished within the modeler or in a separate module (as in LightWave 3D's Surfaces module). Again, using the skyscraper analogy, this is similar to adding the stone facing, window glass, and decorative trim to the building. Although the concept is simple, the options are so numerous as to be often overwhelming. The simplest technique is to digitize, say, a real marble pattern and then use the software to wrap this texture around your object. Called surface mapping, this is quick and painless; the hardest part is to get the edges of the image to meet without a visible seam.

Potentially more powerful, but more complicated, is the algorithmic texture map. In this variation, the program uses software to generate the pattern (as in Figure 3, where the simple spherical object—whose wireframe representation you can see in Figure 4—has been texture mapped so that it now appears to be a planet or globe). Because the computer generates the texture, the variations are, theoretically, infinite (depending on the software, of course).

Texture mapping is one of the more exciting areas of 3-D modeling, with new variations appearing almost daily. The beauty of mapping the texture to the object is that you do not have to worry about contouring, shading, or highlighting; the computer handles these automatically. As there are so many possible variations in a texture, you may spend a long time arriving at one that pleases you. Nevertheless, it is much easier to instruct the computer to modify a setting and rerender the object than it is to draw the surface by hand, only to find that you took a wrong turn somewhere and have to start over from scratch.

The Digital Director

The next stop on our journey is the digital studio. This is where you build what is known as a scene, or the artificial universe in which your objects exist. For this phase, put away the drafting table, take out the director's chair, and treat the scene as the stage or movie set we discussed earlier—complete with actors and props (your objects), lights, backdrops, and, of course, a camera for recording your brilliant staging. As with the ►

modeler, the ideal scene module allows you to work in either a 3-D or 2-D environment (see Figure 4). Once again, this may be necessary to ensure the precise placement of your objects in the dimensional space.

First, decide how large your set should be and then place your actors and props within the boundaries of this space. It is often helpful to position your software camera, then orient the objects while viewing the scene through your digital "lens." You may, of course, view the scene from whatever position you wish—from on high or even from below, as if you were looking through a glass floor. You get to define "reality" here; you are the digital deity.



Now you are ready to light the scene. Depending on the software you are using, you will have from one to an infinite number of lights with which to work. The number of lights your 3-D package provides is one of the most important aspects in the success or failure of your images. If you are working with a single light, your images will tend to have a monotonous sameness. As you gain confidence and your scenes become more complex, multiple light sources are mandatory. For best results, put on your photographer's hat while you are lighting a scene.

For best results, put on your photographer's hat while you are lighting a scene.

Think in terms of the standard three-point setup: a key light, a fill light, and a back light. If you are fuzzy on this concept, a basic photography manual is invaluable. Keep in mind that 3-D software mimics the laws of physics. Even though you are manipulating little figures on a monitor, the computer treats the lights and objects as if they were in the real world. For example, if you want a shadow on the left side of the character, you must place a light of sufficient power at the proper angle and distance to the right of the subject. I cannot overemphasize the importance of good lighting technique; it will make or break your final image.

Depending on your needs, you may want to consider 3-D software with "ray-tracing" capabilities. The principles behind this technique are simple in concept, but complex in execution. Ray tracing takes the simulation of the laws of physics to their extreme by applying them to each simulated ray of light in your scene. The software calculates the path of a ray of light from its source to your eye—bouncing off reflective surfaces, passing through water or glass, casting shadows, and defining textures. The drawback is that this process requires literally millions of calculations and a lot of rendering time. But if realism is paramount to you, there is no better way to go.

And Choreography, Too!

3-D software is unquestionably revolutionary, but no aspect of it is as impressive as its power to animate. Although the holy grail of perfectly realistic character animation is not yet a reality, desktop 3-D software puts this marvelous art form nearly within the reach of every artist. Not only that, but you can create striking animations even if you are not a gifted artist. Your skill at drawing, while not unimportant in terms of composition, color, and style, is not so crucial in the creation of individual 3-D objects or characters. In traditional 2-D animations, such skills are essential if you are going to draw the same character hundreds or even thousands of times. With the help of powerful software routines built into 3-D programs, however, once an object exists, you'll never have to draw it again. If you are not satisfied with something, simply tweak a few settings and command the software to do the grunt work.

If your animation is in an Amiga screen format, you can replay the 3-D animation frames in real time, using any number of standard animation packages. On the other hand, if you create the images in one of the new 24-bit, 16-million-color formats, you will need a way to save the individual frames, which usually involves some expensive hardware. If price is a problem for you, low-cost solutions are available via such hardware/software systems as Digital Creations' DCTV or Black Belt System's HAM-E. These "black boxes" use conventional Amiga-formatted files to simulate the 24-bit display, and they allow you to play back your animations in real time.

Computerized 3-D modeling opens up a new world to both the traditional artist and amateur graphics fan. Accomplished artists can use this powerful software to indulge their most outrageous fantasies and to push their talents to the limit. The novice, too, will be able to create beautiful objects in a much shorter time than the traditional period of art apprenticeship usually dictates. Of course, mastering the power at your fingertips does require tackling a steep learning curve. Taken one step at a time, however, it is manageable and, above all, one of the most rewarding things you will ever do with your Amiga. ■

Gene Brawn is a digital animator, graphics designer, and frequent lecturer, as well as a contributing editor to this magazine. Write to him c/o AmigaWorld *Editorial Dept., 80 Elm St., Peterborough, NH 03458.*

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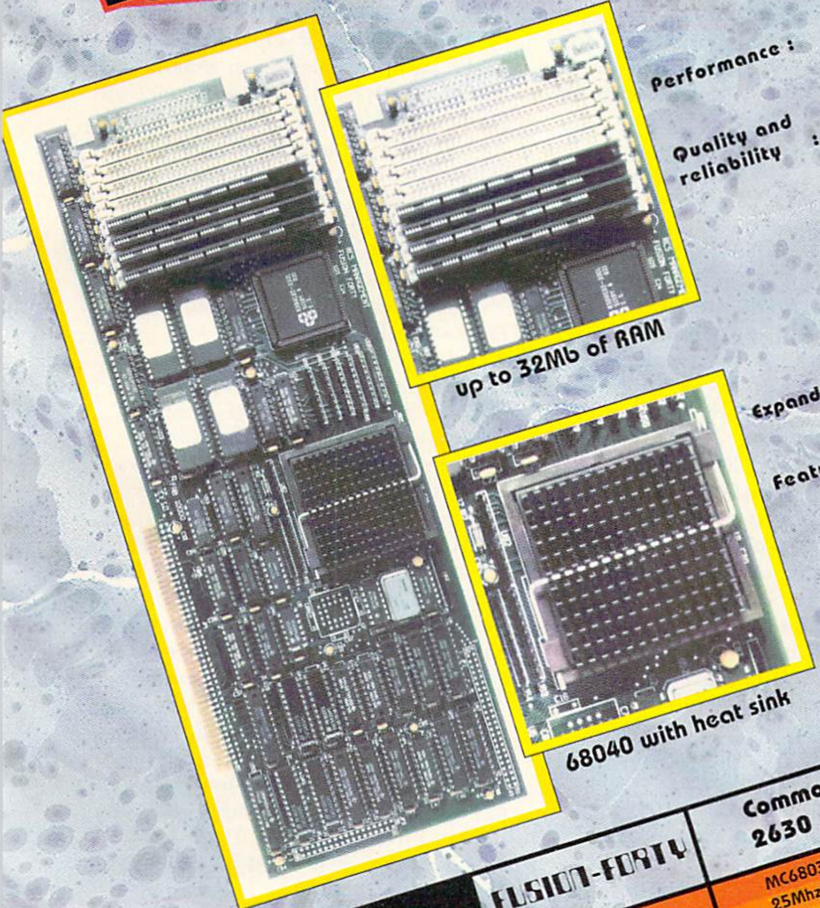
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ACCENT ON GRAPHICS

Painting with DCTV

32

A continuing series of tips, techniques, and tricks for creating more imaginative Amiga graphics.

By Joel Hagen

AMIGA ARTISTS ENJOY an increasing number of alternatives to 32-color or HAM images. In fact, with a new generation of 24-bit or near 24-bit imaging devices (with their accompanying software) making it possible to create up to 16.7 million colors, even the Amiga's original 4096-color display seems a little passé.

One of the more interesting of these new products is Digital Creations' DCTV ($495), the Paint module of which allows painting with millions of colors on a TV image. DCTV is a small box that plugs into the RGB video port on the Amiga. I plug the Video Out cable from DCTV into the Video In jack on my monitor and set the Video Mode switch to Composite when I use DCTV. In addition to the Paint program, other software modules—Digitize and Convert—allow you to capture images from a video source and to process and convert them into any standard Amiga format and resolution (as well as saving them in DCTV "raw" or 24-bit IFF file formats).

This month's column details an easy first project with DCTV Paint that yields results I cannot achieve with HAM or 32-color paint programs.

NATASHA'S A HAM, BUT MORE WAS NEEDED

The object of this project is to give a digitized photograph the look of a painting. Even a nonartist can achieve interesting results with this technique. I started with a photo—taken on a trip to the Soviet Union—of a friend, Natasha, in the birch woods near Moscow. I had previously digitized the image in HAM mode, but with poor lighting. I liked the composition, but it was grainy and indistinct and soon relegated to the scrap drawer. Ironically, however, this graininess made it a perfect candidate for my DCTV idea.

Loading the image, I selected Hide Pointer under Paint Options. Doing this makes the crosshairs disappear when a stroke is begun. Using the Brush icon to put me in Paint mode, I selected the dotted-line drawing tool for a faster response than that obtained with the solid-line tool.

Beneath Palette are the five buttons of the Panel selector. Opening the Brush panel reveals an assortment of modes, controls, and shapes. I selected Solid, then Blend mode, as my primary tools for this project. Blend picks up colors the brush passes over, smearing them along the stroke. You can control the behavior of a Blend brush with the Flow slider. A Flow of 100% lays down heavy, opaque color. Lower Flow rates give a subtler, more gradual effect that fades over the length of a stroke. I used a Flow of 25% for this project. I chose a round brush, changing its size with the + and – keys as needed. More often than not, I used a size 5 brush. This provides good control and responsiveness, even on a stock Amiga 1000.

This basic setup is quite easy: Simply load an image, select Blend, slide Flow down to 25% and start painting. When the Blend brush passes over an area of the loaded HAM image, pixels vanish, to be replaced by a soft brush stroke of smooth colors. The "feel" of painting with DCTV is quite different than with a program that lays down a tile of colored pixels.

I started with Natasha's hair, smearing the colors out in smooth strokes as though I were using oils. The graininess of the original HAM image helped me see which areas I had not yet retouched with the Blend brush. I planned to go over the entire image, making the final picture look as though it had been painted with brush strokes.

I was careful to follow contours and lines in logical ways. As I stroked the brush along the wrinkles in the jacket, pixels blended and became soft shapes. In the hair, I followed lines in the underlying image. The Blend brush pushes color from one area into another. As I painted, I revised the original image—extending the line of the collar, painting out extraneous detail, and refining lines and edges with careful brush strokes. I saved the face for last,

Using the millions of colors available in DCTV's 24-bit paint software can yield some impressive results.

learning the behavior of the tools on less critical areas.

GIVERNEY IN THE MOSCOW WOODS

As the image developed, I wanted more color in the background for an impressionistic mood of sunny woods in the distance. I switched to Tint mode, which colors an area while retaining the detail. Setting Flow to 50%, I selected the Draw Filled icon from the tool bar. From the Fill panel, I then chose the Point highlight. Using a light-blue color, I outlined areas of sky in the background, specifying the area of maximum tinting by clicking the cursor at that highlight point. Because Flow was set at 50%, the tinting effects were subtle and cumulative. The Point highlight kept the edges soft. I added warm color to earth in the middle distance and brightened the greens of the foliage.

Returning to the original Blend mode settings, I worked the colorful background heavily, breaking up the photographic detail, but preserving the feel of organic forms. Moving to the face, I took care to control the brush strokes so that areas of light and dark colors did not intermix to destroy the modeling of the features. At the time of writing this article, DCTV Paint does not have an Undo function (such a feature is promised in the upcoming 1.1 version), so I made frequent use of the Quick Save/Quick Load feature as a safety precaution.

In the original HAM picture, a vertical slice of busy background cluttered the image to the left of the large tree. As my blended image neared completion, I decided to fill the left side with dark color to strengthen the composition. I used the Draw Filled tools again, but this time with Solid color and the Vertical hotspot. With the Shift key, I was able to select a dark color directly from the screen. I then returned to Blend mode, adding brushstrokes to the dark area to finish the image.

While the file size of my original HAM image size was about 95K, the 24-bit IFF version of my blended picture was over 500K. The DCTV version, however—containing all the color of the 24 bit version—was only slightly larger (105K) than the original. With this DCTV advantage, the artist can enjoy the benefits of the millions of NTSC colors in addition to the small file size of standard IFF images. No special software is needed to display DCTV images, because they are stored as standard IFF files. Almost any display or presentation software can use them. Remember, however, that you must keep the DCTV box plugged in to see full video color; if you don't, you won't see anything. ■

Joel Hagen's credits include work in art, astronomy, science fiction, and software development. Write to him at 10512 Sawyer, Oakdale, CA 95361. Please include a stamped, self-addressed envelope for a reply.



In "Natasha" (above), a photograph digitized in HAM has been modified with DCTV's Paint program to look like a painting.

Video for Animators

At last there's a low-cost solution for single-frame recording.

By Louis R. Wallace

THE AMIGA HAS been a consistent leader in both animation and video, offering advanced animation software at a fraction of the price of other platforms. While animations could be played in real time, they were, however, limited to the standard Amiga display modes and palettes. Although these screen resolutions have been useful for on-screen demonstrations, educational use, and other such applications, in most cases the resulting animations are not suitable for professional output.

In the past year there has been tremendous progress in the twin areas of Amiga graphics and animation. With the new generation of animation software such as Caligari (Octree), Lightwave (NewTek), and Imagine (Impulse), Amiga animators have tools equal, and in some cases superior, to many of the professional software tools currently used for commercial animation. New graphic hardware gives the Amiga animator access to full 24-bit graphic displays. NewTek's Video Toaster is a composite video-output display card with a video signal perfectly suited to broadcast applications, while Impulse's Firecracker 24 is a powerful, 24-bit RGB device capable of displaying pixel resolutions of 1024×482 on a standard Amiga RGB monitor.

Affordable tools for creating professional animations are only half the equation, however. Obviously, you cannot haul out your Amiga on any and every occasion to display your animations; you must be able to transfer them to videotape. Currently however, no personal computer has enough power and memory to animate full-screen 24-bit sequences in real time. You must create and record your animations to videotape one frame at a time, a process called *single frame recording*.

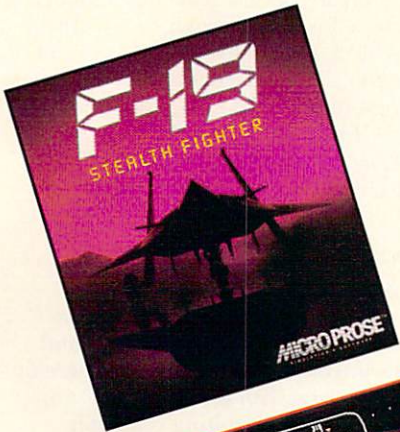


Figure 1. The Personal SFC's main control center.

Home VCRs and the bulk of industrial editing VTRs (such as Panasonic's AG 1960, NEC's PC-VCR, and Sony's EVO 9700) are not suited to the task. You need a more sophisticated video deck, with absolute frame accuracy, that you can control from your computer, and that has the ability to read and write some form of time code, usually one of the SMPTE formats. In addition, you need a transport controller, a computer-controlled device that in turn controls the VTR.

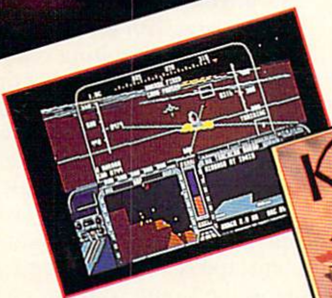
This type of equipment is generally quite expensive. The Sony VO9850 SP VTR with time code ($8100) and BCD 5000 transport controller ($3000) that *AmigaWorld* purchased for single-frame recording was an effective solution. ►

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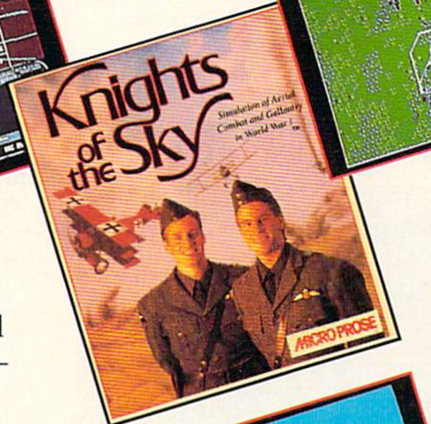






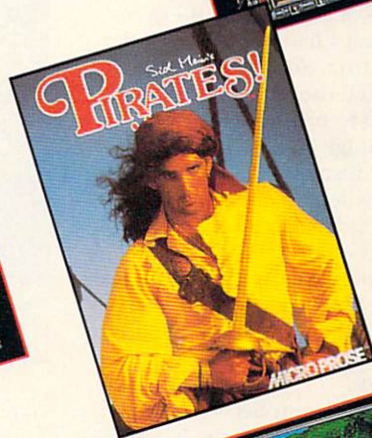














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Combined, however, with the price of the computer, memory, disk storage, graphic display device, and software, their cost is beyond what many prospective animators can afford.

February's InfoCOMM multimedia show and April's NAB convention brought good news for the price conscious. At the former, Panasonic showed a new SVHS VTR called the AG 7750, which representatives promised would be "perfect" for Video Toaster users. According to Panasonic, the deck has a built-in TBC, SMPTE time code, an RS-422A interface, and frame accuracy. Just as important is the price—$6500 for the deck and $650 for the time-code card option (AG F700). You should be able to find street prices that are considerably lower.

At NAB, Nucleus Electronics took a step towards fulfilling Panasonic's promise, announcing an extremely low-priced transport controller for use with the Toaster's Lightwave animation package and (you guessed it) Panasonic's AG 7750. Instead of costing thousands of dollars, the Personal SFC (Single Frame Controller) lists for only $425.

Theory into Action

While somewhat dubious about the effectiveness of anything so inexpensive, I decided I had to find out if the claims were true. Shortly after the shows, I added the Personal SFC and the AG 7750 to my Video Toaster-equipped Amiga 2500.

Hardware installation was extremely simple: For video, I connected a video cable from the Toaster's Video Out to the AG 7750's Video In connector. The AG F700 time-code card went in equally smoothly. I loosened a couple screws on the top of the deck, lifted the lid, and inserted the card in the easily accessible slot.

The Nucleus controller was also simple to set up, because the hardware component is merely a cable that runs from the Amiga's serial port to the AG 7750's RS-422A port. Unlike other transport controllers, which are usually large boxes that connect to the computer via cable, the Nucleus controller supposedly has circuitry embedded in its connector that, with the accompanying software, replaces a great deal of the traditional unit's "unnecessary" electronics.

When starting the SFC, you are presented with a fairly clear-cut interface (see Figure 1) that is segmented into groups of related controls. The

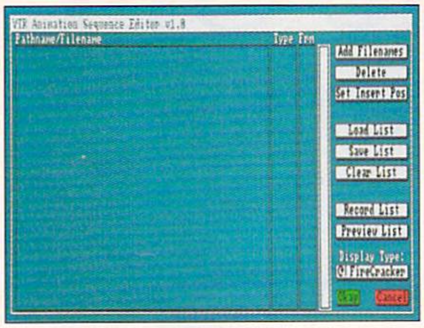


Figure 3. The Animation Sequence Editor lets you specify a list of scenes for display and recording.

upper-left cluster powers standard VCR functions (Play, Pause, Rewind, Fast Forward, Stop and Record); the middle set consists of a time-code readout and a jog-shuttle dial; and the upper-right group sports six special-function command buttons. The bottom of the main screen is a status display, where the software keeps you informed of its actions.

To begin single framing with any system, you must first stripe a tape—that is, write time code and a black

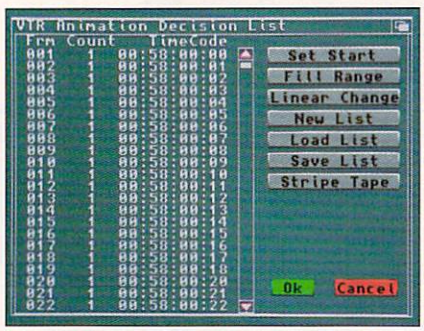


Figure 2. In the VTR Animation Decision List screen, you can specify your recording settings.

video signal to the entire tape. The system subsequently uses this time code to access specific frames on the tape. This is an absolute necessity for single-frame animation work. Striping a tape on some systems is an overly complex chore, but the Personal SFC makes it a breeze. Clicking on the Anim button brings up the VTR Animation Decision List screen (see Figure 2). From here, you set the starting time-code value you want on the tape, and you are prompted to make the proper control settings on the AG-7750 before it begins striping.

Keep in mind that you should supply a good video black signal; there are two easy methods of doing so from the Toaster. The first is to select a black background from the Toaster switcher and BKG for the Program output. This will work, but you can obtain a better black directly from Lightwave. From the Lightwave Scene menu, clear the scene to remove any objects, images, or backgrounds, and then select Render. This creates a very good black that you can use for striping your tapes. Once the black screen is rendered, you can reenter the switcher, make sure your program output is DV1, and then use the CTRL-CTRL-ALT-ALT key sequence to return to the Amiga display, and the SFC software to start the tape striping.

Custom Control

Once you stripe the tape, you can configure the SFC for use in Lightwave. Return to the Anim menu and indicate by selecting Set Start where on the tape you wish to record your animation. In the resulting requester, enter the position on the striped tape, using the hour, minute, second, and frame number at which you want to begin recording. You can also specify the number of frames of tape you wish to record for each animation frame, although normally you'd want only one frame apiece. By clicking on the number in the Count column, you can change the number of recorded frames for *any* frame, independent of the others.

Selecting Fill Range lets you set an entire range of frames with the same frame-count number. This is very useful for animations in which you don't need a different scene every frame and are willing to settle for recording two frames of video for each frame of animation. I use this feature to record multiple video frames of the first frame of my animations. I normally write 30 frames (a full second) of video for the first animation frame to use later on when I edit the sequence onto another tape.

The final set-up phase begins by choosing the Auto option from the main menu. In the resulting requester, select the Toaster Render option. A final requester then asks you for the frame at you want to start recording. Normally you indicate the default value of 1, but there will be times when you need to restart an unfinished animation from where you left off. For example, if you have already recorded the first 250 frames of your Lightwave scene on tape, you can tell the SFC software to start at frame 251 (just as ►



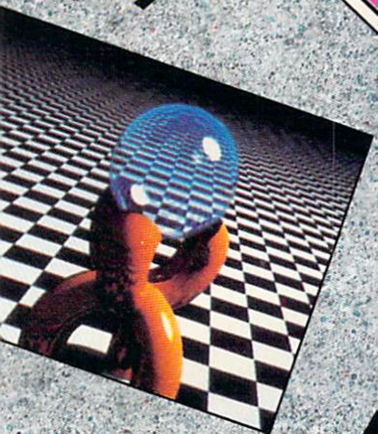
All photographs are of actual DCTV screens.





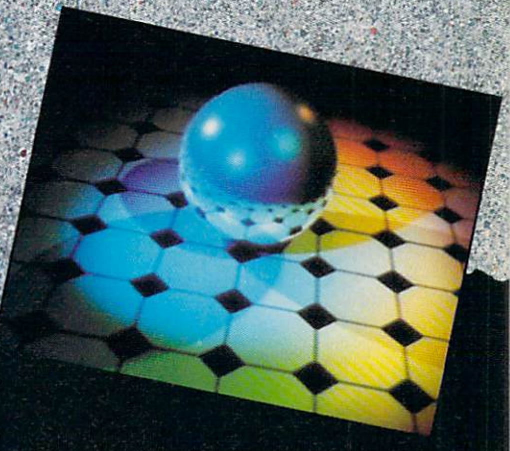
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you can start Lightwave rendering at the same frame). This can be an invaluable time-saving feature.

At this point, a message appears in the status window indicating you are in Lightwave control mode. Returning to Lightwave, select the Record menu and enter the Record command, T#. Now, when you render your scene (if you have enabled Lightwave's Record mode), each frame will be recorded to the videotape at the position you indicated in the SFC software.

Beyond Toast

As you can see, the Personal SFC is a powerful and extremely easy to use addition to the Toaster/Lightwave animation system. Even if it did nothing more than I have described so far, I would heartily recommend it. But it has a number of other features that make it desirable for uses besides Toaster-based projects.

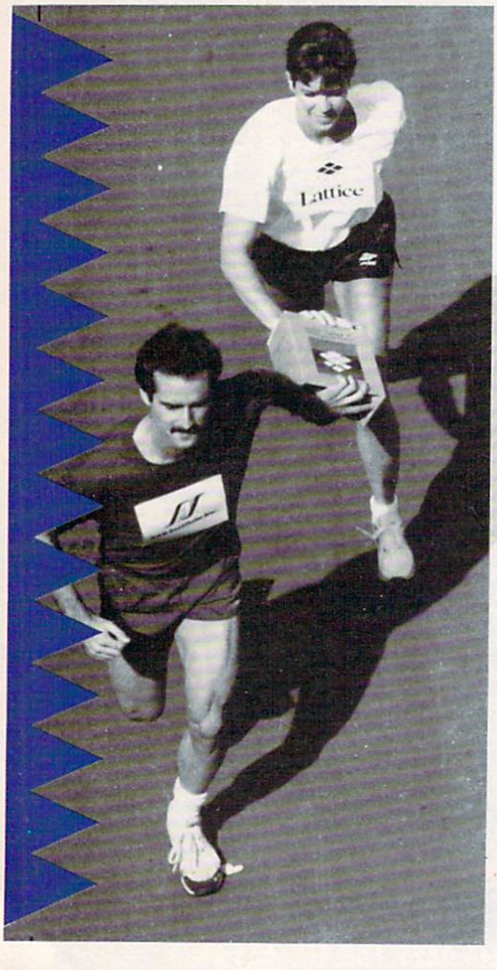
For example, the Animation Sequencing feature (see Figure 3) lets you build a list of filenames of disk-based images. Then it displays and records the images to tape, one frame at a time. It supports a great number of display output devices, including Firecracker, Framebuffer (Mimetics), DCTV (Digital Creations), HAM-E (Black Belt Systems), Colorburst (M.A.S.T./Centaur), Toaster framestores, and standard IFF images. Once you create a sequence list, the Personal SFC software loads and records the images in the designated sequence. Or, you can create a small black-and-white Amiga animation that the SFC software will play on the normal Amiga display.

For those who would like to experiment with stop-motion animation, the software includes an option to manually record incoming video one frame at a time. So get out your tiny dinosaurs, clay models, and the kids' toys and become the next great stop-motion animator.

For me, an even more fascinating option is time-lapse photography. With this option and a video camera, you can compress a long time sequence into a fraction of real time by recording a single frame from the camera every n seconds. As a test, I recorded a flower outside my window for ten hours, at a rate of one frame every 30 seconds. The result was a 40-second film that clearly showed the plant moving in response to the sun, a phenomenon that impressed me as much as the younger members of my family.

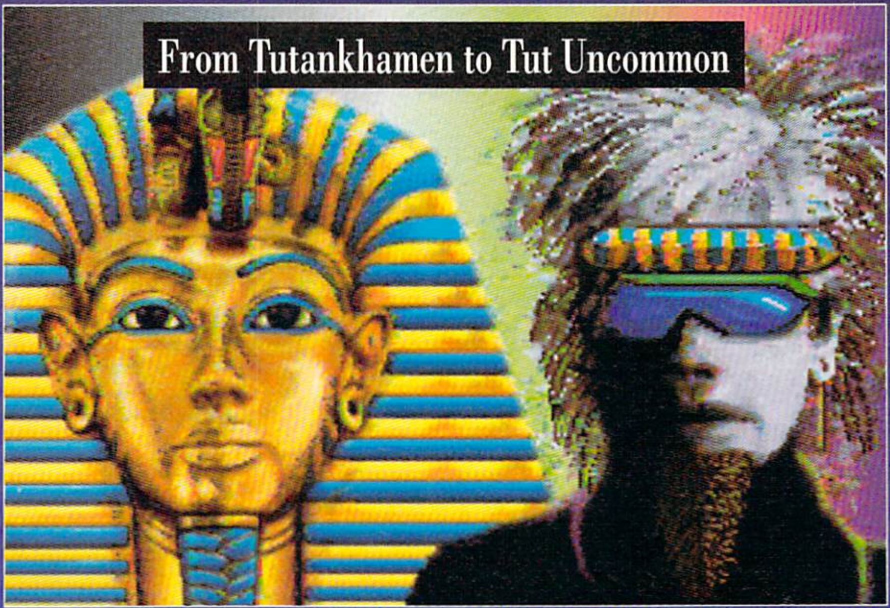
While the Personal SFC was originally designed for use with the Panasonic AG 7750, Nucleus has greatly expanded the number of VTRs the SFC controls. Current support includes such other Panasonic models as the AU 60, AU 65, AU 640, AU 650 and AU 660, as well as Sony's BVU 800, BVU 820, BVU 850 SP, BVU 870 SP, BVU 950 SP, VO 9850 SP, BVH 3000, BVH 3100, BVW 70 Betacam SP, BVW 75 Betacam SP, and the DRV 10 D2. Support for others is under way.

There are a number of animation transport controllers on the market, but none have the price/performance combination or the software features of the Nucleus single-frame controller. Few products come along that offer a real solution to a need, do it far better than the competition, and for a fraction of the cost. The Personal SFC is one of those few. ■

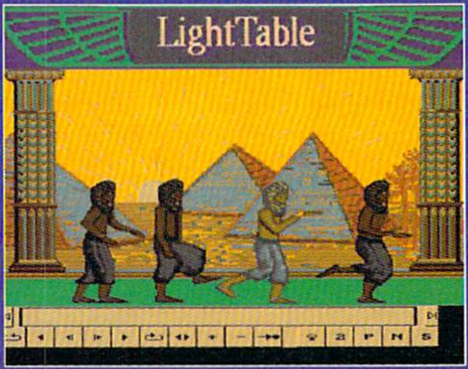


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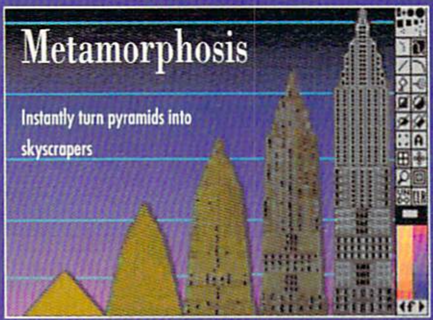
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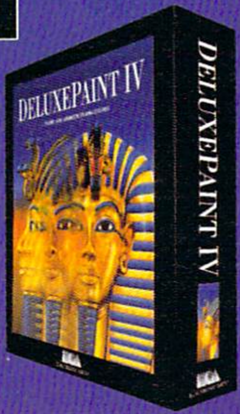
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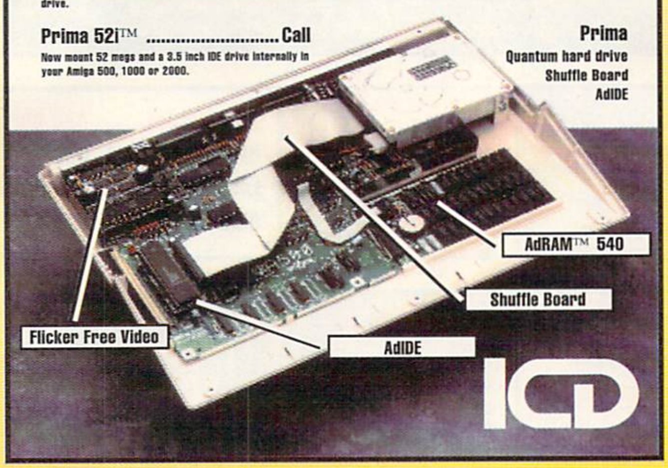
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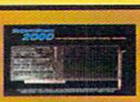


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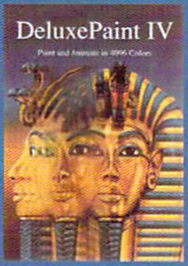
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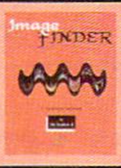
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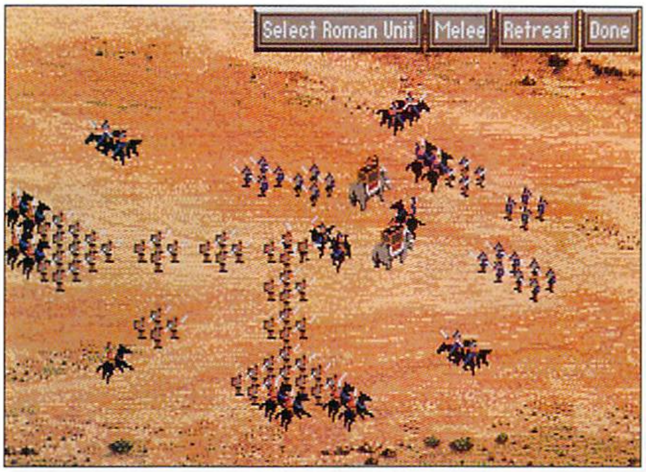
Centurion: Defender of Rome

By Louis R. Wallace

If you enjoy conquering the world—or at least the known world in 275 B.C.—check out Electronic Arts' new strategy game, Centurion ($49.95).

You start as a simple Roman officer in charge of a small legion of troops. To rise through the ranks and become Caesar you must add to Rome's greatness, and the easiest method is via the military. Each turn (which counts as a year) you can move your legion to one of the neighboring countries which you attempt to place under Roman control by either diplomatic discussions or battle. If successful, your actions bring riches to Rome and glory to you, which in turn can mean an increase in your rank and an improvement in your military power. If you lose, you suffer a decrease in your social status.

Each new province added to the empire increases the overall wealth by a rate dependent on the tax structure you set up. Harsher taxes mean more money, but they also make the people angry and increase the chance of rebellion. As you move up in rank, you can use the money to fund more legions or upgrade existing ones. This in turn gives you more options for expansion or defense. Part of the strategy in the game is to determine how to spend your funds and where to place your troops so they can be of best use, as well as a defense against the armies of the barbarians, which grow stronger with each turn of the game.



Will you have all Rome at your feet, or be trampled in the fray?

Taking a province by force and clashing with the defending army face to face is one of the best parts of the game, because you actually see and control your legions in the battle. You can specify your troops' initial posture as well as their defensive plans and manipulate individual groups under your general. Sounds of swords, horses, elephants, and screams serenade the squads of soldiers and calvary running around the battlefield either fighting or escaping. Once you or the enemy has been routed from the field, the battle ends and, in true Roman tradition, you go home a hero or on your shield.

Winning wars is only part of the requirement to become Caesar, you must also placate the masses and impress them with your virtues. One method is to build a Colosseum and throw games. You also must buy the lions, tigers, slaves, and gladiators that will fight to the death. The gladiator fights are arcade sequences in which you control one of the combatants, always trying to give the crowd a good show.

To demonstrate your personal abilities, you can participate in arcade-sequence chariot races. The winner gains significant amounts of social status (and receives promotions faster). While it's possible to win fair and square, I found it more fun to make offerings to the gods, hire a physician, and bribe my opponents while making some side bets on the race.

All the action is not land based, however, as you can ►

Crib Notes

By Peter Olafson

• Sometimes a clue will generate as many questions as the game itself. Witness the torrent of notes I've received asking for more details on the solution to the crane puzzle in *Shadow of the Beast II* (Psygnosis, $59.95). The writers typically have successfully picked up the stone pillar and dropped it on the spike, but cannot push the shard over to the teeter-totter as instructed. Seems there's this little matter of an acid pool in the way.

The problem is that you're getting ahead of yourselves. Most of the puzzles in this game are chained; that is, one must be solved correctly to complete the next. Unfortunately, the puzzle you have to solve to make the crane puzzle solvable is among the toughest in the game. (I suspect people are skipping it just out of frustration.)

Let's backtrack a bit: Heading left from the start, before you even reach the teeter-totter, you'll come across a rope. I'm not going to hold your hand all the way up there, but suffice to say the rope leads to an elevator and the elevator to a pit with a chain hanging down into it.

Down in the pit, there's a beast in a cage (to the left), a creature dozing at a table (in the middle), and a wall with two switches (at the right). You want to hit the lower switch to create the bridge over the acid pit in the crane puzzle. Above all, this requires caution and fast reflexes. Drop carefully off the left side of the rope—without disturbing the creature—whomp the dreamer as though he just accidentally reformatted your hard drive, and while he's shaking it off, hit the bottom switch and leap for the chain. Upon returning to the crane, you'll find the bothersome acid ►

To locate developers of the games reviewed, see the "Manufacturers/Distributors Addresses" list on p. 118.

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also invest some money in building a fleet. These ships can be used for transporting troops to providences across the sea or for defense against seafaring barbarians. Like other aspects of the game, when two opposing fleets are engaged it becomes a colorful game of action where you must shoot Greek fire and arrows at the other ship while trying to avoid getting hit.

Centurion offers the player multiple levels of difficulty. At the Galley Slave level you can become Caesar in an evening, while higher levels might take several nights. I have yet to make much progress at the Emperor setting. I found the game to be quite entertaining on several levels: simple enough that it was easy to get started, but with enough depth to keep me interested for quite a while. (Plus, the game is AmigaDOS 2.0 compatible, hard-drive installable, and copy protected by a look-up copy protection scheme.)

WONDERLAND

By Peter Olafson

Somebody snuck into our home the other night, but he didn't steal a thing. In fact, he left something behind—a neatly installed Macintosh emulator in my Amiga.

How can I tell? Well, how else do you explain Wonderland (Virgin Mastertronic, $59.99)? It's either a Mac game or it has the most unabashedly Mac-like interface I've ever seen.

Normally I might get all huffy at the idea of a Mac restore interest in that sadly vanishing genre.

Frankly, the game is an almost unalloyed delight. The pleasure comes partly from the handsome, data-rich, windowed game system—mildly reminiscent of the one Infocom used for its Mac-only Quarterstaff—and partly from the game itself. Essentially, Wonderland permits text, graphics, inventory, a map, a compass, and objects in the room (or any



Does Alice live here anymore?

interface on the Amiga, but it works and who am I to quarrel with success? Wonderland is the first game in ages from the Magnetic Scrolls design team (The Pawn, Guild of Thieves, Fish, and so forth), and it's a solid text-with-graphics-and-a-whole-lot-more adventure destined to combination thereof) to appear within separate resizable windows. The graphics are sharp, beautiful, and often animated (dig the foot-

tapping chair!), and the small-size format makes them more intense. The game also has terrific music, all in the appropriate places.

While the game is based on Lewis Carroll's *Alice's Adventures in Wonderland*, it's not at all glued to it. You may find the level of play difficult in spots, but generally it is easy enough so that you won't feel you're stumbling blindly from trap to trap. (I am curious, though, to see how a trio of earlier Magnetic Scrolls games, scheduled to be converted to this system, will bear up.)

Wonderland, however, should have taken a cue from the rushing White Rabbit in Carroll's story. Playing it from hard disk on a 68000-based machine (its four disks make having a hard drive a big plus), I found the game decidedly turtle-ish in doing just about everything—resizing windows, pulling up graphics, pulling down menus, or just giving you a look at your inventory. I'm not even counting the 45 minutes or so it took to install the game on hard disk and to decompress the graphics files. (Wonderland does run on the A3000, and I suspect it is correspondingly faster on that machine.)

So, hey, Virgin, this is the *Amiga*, remember? The one with the custom graphics hardware? I love your game, and the new look, but don't forget who's going to be playing it!

Continued on p. 80.

pool has been bridged.

An alternate solution: If you push further into the cavern to the right of the pit—a sort of nasty business—you'll find a key. You can use it to loose the caged creature on the sleeper, then take advantage of the resultant mayhem. (Just be sure to get out of the way.)

• Last time, I promised help with the two big sticking points with *Elvira: Mistress of Dark* (Accolade, $59.95). Since then, a few more have turned up.

One is the cook in the kitchen. Definitely an unpleasant character; what's to be done with her? Well, think about her job. There's one particular condiment that will throw her over your shoulder. Have you checked out the Torture Chamber? (Appropriate spot! Don't neglect it as a resource for other items as well.)

It's tempting to play Elvira as a graphic adventure and neglect the role-playing elements, but you can do that for only so long. Magic will work wonders for your progress, and you need to collect ingredients in the herb garden and dungeon whenever possible.

So, on your first trip to the kitchen, be sure to prepare the Herbal Honey spell. (The honey is here, and the hay is at the stable.) It'll allow you to see what's what when you go herb-shopping in the Great Outdoors.

Another problem people are having—killing the werewolf in the stable—isn't so cut-and-dried, as it's not just a matter of finding something in one place and using it in another. You'll need to prepare your weapon first. For starters, get the crossbow from the armory just inside the castle entrance. You should find crossbow bolts in one of the upstairs bedrooms. Take them all, for you'll need them for other tasks (notably for killing off the Gray Knight.)

Are we there yet? No, I said werewolf. Think silver. Out in the garden there's a shed with some very nasty contents. Don't neglect them—you'll need the maggots for your spellcasting—but do be sure to collect the cross. You're almost ready.

Now, get thee to the foundry. In the box beside the wall, you'll find a crucible. Put the cross in the crucible and the crucible in the fire and a crossbow bolt in the melted silver. Ta-dah! Now go hunting, and be sure to check out the stable thoroughly afterward. That last stall conceals a vital item.

I've also heard from a few people stuck in the endgame. They've finally opened the trunk and taken the scroll and dagger, but don't

Continued on p. 80.

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From p. 77.

The Secret of Monkey Island

By Jeff James

Ale swilling, treasure hunting, and damsel rescuing head the bill of fare in The Secret of Monkey Island (Lucasfilm, $59.95). Patterned after Lucasfilm's earlier adventure games, Loom and Maniac Mansion, Secret serves up an entertaining helping of swashbuckling adventure.

Once you deal with Secret's code-wheel copy protection, the game begins with a flourish of excellent opening music, a fusion of Caribbean swing and pirate ditty, that exemplifies the quality of music offered throughout the entire game.

After the introductory fanfare, you're off to enigmatic Melee Island with your adventuresome alter-ego, young Guybrush Threepwood. Guybrush's goal in life is to become a pirate, a quest facilitated by Lucasfilm's "SCUMM" point-and-click interface. Used in Loom and Maniac Mansion, SCUMM involves selecting from a list of verbs at the bottom of the playing screen that form sentences telling Guybrush what to do. After giving Guybrush a command, you see the animated results of your behest displayed in the remainder of the screen.

The action starts by chatting with a comically myopic island lookout, who informs Guybrush that he must speak with three "important-looking" pirates in the local tavern to begin his quest. Once located, this trio of buccaneers explains that Guybrush must complete three trials before he can be considered worthy of being a pirate. These trials, which consist of mastering the skills of swordsmanship, thievery, and "treasure-huntery," take Guybrush from one end of Melee Island to the other, where he encounters a variety of colorful characters and humorous situations.

Unfortunately, Secret is obviously an IBM-port, with lackluster graphics and sluggish screen animation (at least on a stock A500). In addition, Secret offers no capability to allow the user to turn off the music other than manually adjusting the speaker volume. But good game design always seems to overcome the problems of format conversion, and Secret does have a lot going for it. The slow animation and screen scrolling seen when running on an A500 disappear when played on an accelerated Amiga or on an A3000 running AmigaDOS 2.0.

The dialogue between Guybrush and the colorful characters he meets can provoke anything from smirks to belly laughter. You guide Guybrush through encounters with nutritionally conscious cannibals, curmudgeonly shopkeepers, timid pirates, and absent-minded castaways. Guybrush even gets the opportunity to banter with an animated head. Secret boasts some of the wittier and more humorous pixelized patter that this reviewer has ever had the pleasure to read. Throw in a surprise ending and a little romance, and Secret begins to develop into a fairly entertaining adventure.

If you can live with Secret's shortcomings, you'll be rewarded by a lengthy and involved four-disk adventure of sailing under the Jolly Roger, trading insults with unwashed ruffians and haggling with used ship salesmen. You need at least 1MB to run Secret, and it can be installed into your hard drive. If you've enjoyed any of Lucasfilm's earlier game offerings, Secret just might be your mug o'grog.

Battle Command

By Peter Olafson

The much-delayed follow-up to Carrier Command, Battle Command (Ocean / Electronic Arts, $34.95), has finally made it over the Atlantic. While it may not be as spectacular as the original, it still offers a lot of excitement and realistic action.

You guide a futuristic supertank (a "mauler") through 16 missions behind enemy lines, using an assortment of weapons (don't neglect the radar-guided missiles) and go up against a number of spunky and aggressive enemy units—all rendered in solid-3D.

Movement is speedy and quite smooth—the clearest carryover from CC—and designer Realtime Software used geometric shapes well to create a fireball effect when a vehicle or installation explodes in shards. These moments achieve a sort of vicious reality. I like it! (There are lots of installations, by the way, so you'll never be at a loss for some- ►

know how to use them. As you may have gathered, the catacombs is the final stop. Find the recess in the floor, and use the stone you took from the monster you killed in the catacombs earlier. (Killing him is also a sore point for some, but as far as I can tell, it just requires perseverance and good swordfighting.) This'll open a hidden doorway. Check your health—you will need lots of it—and go on in.

Emelda herself is at the end of the the passage. (She's been sitting down here waiting for you for the whole game, so she's plenty ticked.) There's just one way to handle her. First, put inside the pentangle the sword you found beneath the chapel altar. (If you're looking at your copy of AW as though I'd just told you to go swim in the moat, go back and use Elvira's ring in the cross.) Use the scroll from the trunk, stick Emelda with the dagger and sit back and (ahem) enjoy the show.

Actually, go swim in the moat! It's required to get one of the keys and getting out is proving a mucky busines for some folks. Where there's a well, there's a way, but check topside first to be certain the well rope is in the down position.

• You knew we'd eventually get around to *The Immortal* (Electronic Arts, $49.95), right? Some people are stuck on Level 2; they've learned how to get out from the head goblin, but they don't have quite the means. They're missing a gem. Instead, they have this gross rock.

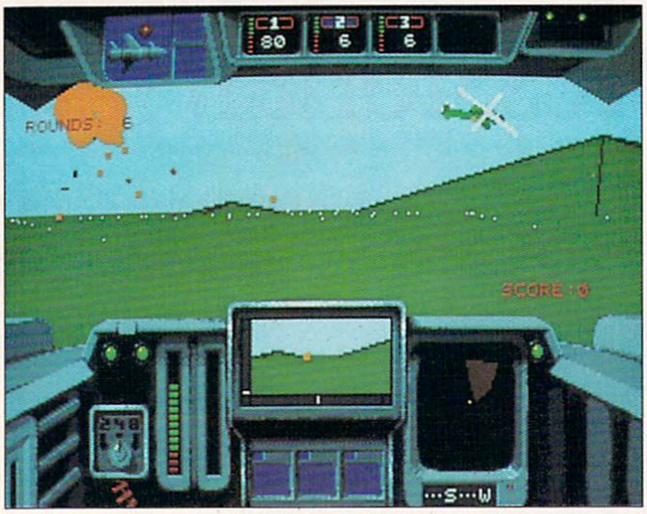
Well, perhaps it's not a rock. Could be just a dirty gem. Maybe if you let the slimes in the level entryway kill you once or twice you'll get the idea, eh?

• Here's a leftover from last issue's hints on the graphic adventure version of *Indiana Jones and the Last Crusade* (Lucasfilm, $49.95). Yes, you do need to pull that giant cork in the catacombs, as it's the only way to get past the water-filled room above. You'll need to borrow something from a skeleton to get a grip on it, though. Then whip it, whip it good.

(However, before you do so, be sure to note in inscriptions in the room at the far end of the bridge, as you'll need them for the endgame.) ►

thing interesting to savage with your arsenal.)

Moreover, Battle Command's missions are agreeably tough, even the first. The enemy is often on you from the time the helicarrier dumps you out—a nice bit of animation here—and they have a nasty habit of moving laterally as they fire, which can make them devilishly hard to hit at closer ranges. It's tough getting to your mission destination; sometimes it's tough just *finding* it.



At the controls of a Mauler, you'll be ready for anything.

It can be even tougher getting to the pickup point with whatever ammo you have left, as your chopper approaches and enemy tanks circle like vultures.

And yet... I don't know: I want to love it, but Battle Command seems to be missing that certain something that would kick into the same class as its classic predecessor.

Although the game is billed as an arcade-strategy hybrid, enemy units are quite thick on the ground, and hence it seems weighted toward shooting. In addition, while the environment for each mission is sizeable, I do miss the open-ended, continuous flow of Carrier Command. Some of the graphics—black borders on hills, the triangle-over-a-rectangle of trees—struck me as C64-crude. Finally, the game has both on- and off-disk copy protection and no provision for hard-disk installation.

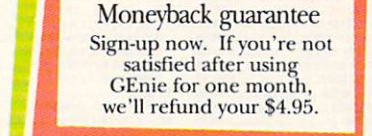
But when the fuel dump goes up, and the fireballs blossom, somehow I forget about that stuff, turn the mauler around, and head for home. ■

• Some odds and ends. We've got a new address: 222 Henry St., Garden Apt., Brooklyn, NY 11201. (Please write, rather than calling.) Also, on GEnie I can now be reached at P.OLAFSON1, though the old address of P.OLAFSON is also good for the time being. With PeopleLink's demise, I can no longer be reached via that route. However, I may join Portal, and will keep you advised of my address there if and when I do. Finally, remember to send a SASE if you would like a personal reply.

Next time: The Secret of Monkey Island.

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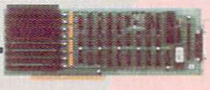
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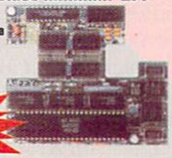
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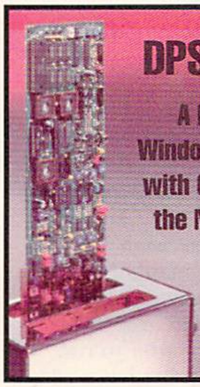
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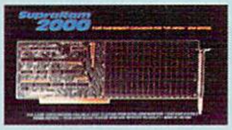
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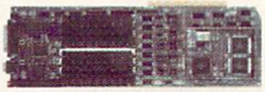
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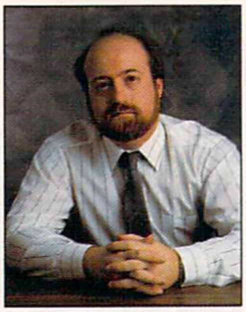
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HELP KEY

Whether on Syquest drives or genlocks, autobooting or CDTV development, Lou delivers words of wisdom.

By Louis R. Wallace

Mountains of Megabytes

Q: *I've been planning on buying a new hard disk to supplement the 40-megabytes in my A2000, and after reading the article on removable media in AmigaWorld, I started thinking about getting a Syquest 44-megabyte cartridge drive. But now I hear Syquest has a new 88-meg removable drive. Is this Amiga-compatible? What will I need to do in order to use one in my A2000?*

J. Williams
Minneapolis, Minn.

A: The new 88-megabyte Syquest drives are indeed Amiga-compatible. I just added one to my A2500 system (equipped with the A2091 controller), and it works like a charm. All you need is a SCSI hard-disk controller that can support removable media. According to Syquest, they have set up the 88-meg drive on their Amigas using the GVP Series II as well as the CBM A2091 hard-disk controllers, and the drive should work on other SCSI controllers that support the older 44-meg machine. You should keep in mind that this new drive mechanism is capable of reading the older 44-meg Syquest cartridges, but it cannot write to them. Depending on where you buy it, you can expect to pay in the range of $750–1000 for an external drive, and $650–900 for the internal version. Even though Syquest does not sell directly to the public, you can write or call them at the following address for technical information or the address of a dealer: Syquest Technology, 47071 Bayside Parkway, Freemont, CA 94538, 415/226-4000, 415/226-4100 (FAX).

Gem of a Genlock

Q: *I have an A2000 with a 1084S monitor, and I'm interested in writing some interactive multimedia applications for my company. I was hoping you could suggest a good genlock, as I plan on using video from either a laserdisc player or a computer-controllable VCR like the PC-VCR from NEC. I do not plan on recording any video through the genlock, so it doesn't have to be "broadcast" quality. Any suggestions?*

B. Trevaro
Phoenix, Ariz.

A: It sounds as though you need Commodore's A2300 genlock. The video and computer graphics output can be displayed directly on your RGB monitor in RGB mode, making it perfect for interactive multimedia. It is also relatively inexpensive, as far as genlocks go. Finally, even though you don't plan on recording your applications to tape, the A2300 also has an NTSC output that enables you to send the signal to a composite monitor or television for display, or to a VCR for recording.

A Running Start

Q: *I understand that it is possible to add statements to the Amiga's Startup-Sequence in order to run programs and utilities when the computer first starts up. I'm really not very good at using the CLI, but it seems that some programs that work just fine when I double-click on them from Workbench don't work as well when started from the CLI. I have an A3000, and part of the reason I bought it was that it supposedly had a more advanced Workbench. Isn't there some easy way to start Workbench programs automatically?*

W.W. Smith
Denver, Colo.

A: As long as you are using Workbench 2.0, there is a very easy method to do exactly what you want. On your Workbench drive is a drawer called WBStartup. To have Workbench programs automatically executed when the machine boots, just place a copy of the program in that drawer. If you have more then one program in WBStartup and want them to start in a particular order, you can use the STARTPRI *i* command in the program's Tool Types. To do this, click once on the program's icon to highlight it, and then select INFORMATION from the Workbench Icons menu. To add a Tool Type, click on the button labelled NEW. This will place an active cursor in the small text input field to the right, from which you can enter the Tool Type you require. In the case of STARTPRI *i*, you would set the *i* to any number between –128 and 127. Those programs with the highest STARTPRI values get executed first.

CDTV Software Development

Q: *I am considering developing some software for Commodore's new CDTV system, but I want to use a high-level development language and definitely don't want to resort to C, assembly or other similar languages. Do you think AmigaVision would be suitable for CDTV development? What other "multimedia" languages would work?*

B. Maloski
Cleveland, Ohio

A: In some ways, AmigaVision is a perfect CDTV development language, but it does not produce stand-alone programs. Programs written with it require AmigaVision in order to run, and on CDTV that wouldn't leave a lot of memory for the application. I have heard that a special developers' version of AmigaVision is coming for authoring CDTV applications, but no release date has been announced.

There are several other high-level authoring packages you should be able to use for CDTV development. These include The Director Version 2 (Right Answers Group) and CanDo v1.5 (INOVAtronics). In addition, the new Foundation authoring language (Impulse) sounds as if it would work as well. All three of these sophisticated programming tools support the various multimedia elements you'd want to have in a CDTV program. ■

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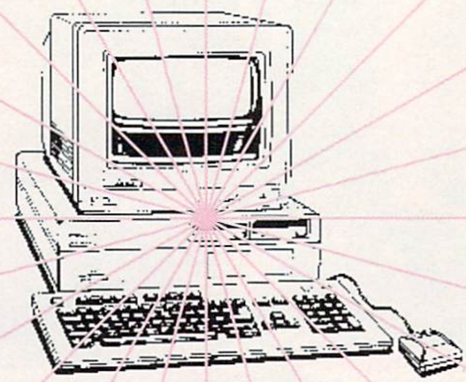
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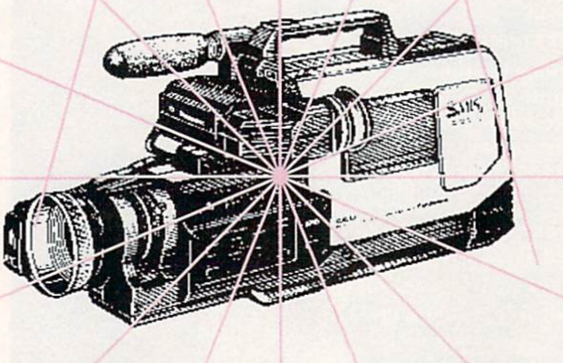
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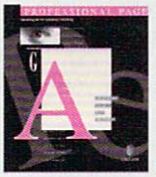
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From p. 20.

of your creation before you render so that it appears placed at the correct angle. After you have framed your object, you can record its placement so that when you go back to modeling or forward to the next section, which is rendering, the observer position will correspond to the new location.

In Wireframe mode, you can also record your movements around an object to create limited animations. While Real3D provides no computer in-betweening or ease-ins, you can, however, create some basic animations with macros and by drawing paths in tri-view.

The third and final section is where you set up your rendering. This area has a very nice layout with lots of controls for overlighting, base lighting, background color, antialiasing, aspect ratios, recursion depth, screen size—all of which are amply explained in the comprehensive, easy-to-read manual. Real3D lets you determine what level of rendering complexity you desire, allowing you to start at a low (fast) mode and working your way up to a higher (slower) mode so that you can make sure that everything is how you want it before committing to something that may take a lot of time.

The images that you can create directly with Real3D are in HAM. If you want images in an Amiga format other than HAM, you must render them in 24-bit format first and then convert them with a program such as Art Department Pro (ASDG) to another resolution. You can import Sculpt 4D objects using the utility provided, but since Real3D is not a vertex-based program, you cannot export objects to other 3-D programs such as Sculpt or Imagine. Real3D provides support for 24-bit IFF.ILBM formats.

I am very impressed by the overall logic of Real3D. It is a well-thought-out program that adheres to its concepts. You do not get the feeling that anything was just stuck in at the last minute. Each screen is very well laid out, with lots of buttons and keyboard equivalents to maximize speed and ease of use.

At first, it may seem a little stiff to make everything in the world out of primitive shapes, especially free-form objects like human beings and plants, but as you become familiar with the process, you will soon find that the speed at which you can create objects more than makes up for it. Also, I have heard that the future of this product holds in store a free-form object tool kit. I am looking forward to it. *(Editor's note: The developer had plans at press time to release a significant upgrade during September. Activa promises more than 65 new functions, including free-form modeling and point editing.)*

On the whole, I find Real3D to be a good, professional, extremely easy-to-use package. The manual is well-written, and reading it was an education. With Real3D, we are one step closer to creating real-world representations of our dreams.

Pelican Press

It's going to be a banner year!

By Rick Manasa

BY ITS LIGHTHEARTED name, you may guess that this banner- and poster-generating program is geared toward the home and school set. That doesn't mean, however, that you cannot use it for more serious projects. ***Queue***'s Pelican Press ($99.95) packs some pretty powerful features into what might otherwise be dismissed as kids' stuff.

The program comes on one bootable disk, with two disks of clip art, and it is both Workbench 1.3- and 2.0-compatible.



Pelican Press lets you combine clip art with your own text and graphics.

The manual makes no assumptions about your previous experience, and describes almost everything you need to know to get rolling with a minimum of fuss. The hard-disk install program is Spartan, but efficient. After performing the suggested assigns, I was up and running in no time.

Pelican Press runs on a 512K Amiga, but I strongly recommend 1MB of RAM. Some of the larger formats may limit the amount and size of the clip art and text you can use. You can monitor the amount of memory available by means of the miniature traffic light located in the upper right-hand corner of the main screen. The manual provides a section of hints and work-arounds on how to get the most out of a standard Amiga when running Pelican Press. In fact, a great deal of care is taken throughout the manual to anticipate any problems you might run into, including everything from the possible consequences of using the program on a 512K system to the basics of using the Amiga operating system.

Shorts

There are many hot-key equivalents to the menu commands. Some are of the key-combination variety, while others are single-key equivalents, like those found in DeluxePaint (Electronic Arts). As you become familiar with the program, you will appreciate this more and more. The ability to access menu functions from the keyboard leaves the mouse positioned for editing or drawing, where you need it most.

While the tutorial is good, you should be familiar with the operation of the Amiga and paint programs before walking a youngster through it. By the time you have both completed the exercise, you will have a solid working knowledge of the program's fundamentals.

One of the most helpful sections of the manual is the Creativity Guide. This is a collection of design tips that point out some not-so-obvious ways to use the many tools and features in the program. Many of these tips are not specific to Pelican Press, and can be used in other paint or graphics program.

There are six design formats in Pelican Press, called Poster, Sign, Note, Card, Calendar, and Banner. All formats are made up of three layers—one each for backgrounds, frames, and clip art and text. You can either create your own background with the drawing tools or load one from the Backgrounds and Posters disk provided. Then, you can lay frames, clip art, and text over your background.

Posters, Signs, and Notes are identical in every way except in scale: Posters are three screens high, Signs are two, and Notes are one. Cards are composed of four Signs arranged so that when folded they form a standard greeting card. Calendars include space for information in each date and a ►

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Note-sized graphic on top. Banners use their own fonts, which are not compatible with system fonts. While you cannot have backgrounds or frames with Banners, you can sprinkle clip art and text throughout the letters.

Pelican Press also allows you to import IFF files. If you've created a favorite border in another paint program, or scanned an image from your photo collection, you can load them directly into Pelican Press—in any layer and design format. If you decide you want to touch up a piece of clip art, you can do it with the program's extensive array of drawing tools. Conversely, if you save all your projects as IFF files, you can use them with other paint and graphics programs. These are tremendous advantages over the first versions of PrintMaster (Unison World) and Deluxe Print (Electronic Arts), the two Amiga programs most similar to Pelican Press.

Pelican Press's Tool Box comes with a full complement of paint-box drawing and editing tools for working on backgrounds or clip art. The program also includes other features that lend credence to the claim that Pelican Press is a publishing program. You can move or copy a piece of clip art, position various clips in front of or behind other pieces, and delete those already in place. While you would expect to see these features in a desktop-publishing program, they are not normally found in a paint program.

The program's Menu items allow you to load and save your work, change your palette, and select and place your graphics and text. Some features, however, are more thoroughly developed than others. The Print requester reminds me of the one in DeluxePaint with lots of choices and parameters for designing your final output. You can create your own patterns for tiling a background, using any enclosed or user-supplied IFF graphic. You can even layer background patterns and stamp clip art into the background.

The Bird Lands

As much as I like Pelican Press, there are some things I would have done differently. There should either be a wider selection of Banner fonts—the program provides only two—or a way to convert system fonts for making banners. Also, the Preview mode is ineffective for examining your layout; it's strictly for getting a broad sense of your design. In addition, although there are many hot-key equivalents, there is no on-screen help to jog your memory. A simple text screen attached to the Help key would suffice. A magnify feature would certainly make detailing easier, and it would be wonderful if Undo worked its magic on any action, not just the last action involving a drawing tool.

The developers at Queue really did a nice job with Pelican Press. You would have a hard time finding one with this much power and versatility that's easier to use. It provides all the tools and features we have come to expect from a program of this type, plus an integrated paint program. It enables you to express your creativity in a format that is easy to understand and fun to use. My ten-year-old whisked it away from me the day the review copy arrived, and she's been making impressive banners and posters ever since. Now she wants a color printer for her birthday, so she won't have to hand-color the printouts!

Norgen/Your Family Tree

For those who dig roots.

By Betty Clay

IN JUST ABOUT any family, there is always one person who keeps track of all family members, living or dead. She's the only one who knows who is related to whom, and she's also the one who can identify all those strangers in the family albums. Genealogy is a keen interest of many. Then there are those who make it their life's study to scrupulously unravel—and link themselves to—the past.

Many people take their genealogy very seriously. Those who delve deep into musty records and spend hours looking for clues are pretty demanding when it comes to trusting the fruits of their labor to a computer. The Amiga's graphics, multitasking, and large memory capacity all make it excellent for genealogy. In addition, its compatibility with other platforms—via hardware such as Commodore's Bridgeboards or ReadySoft's A-Max, or conversion software such as CrossDOS (Consultron) or DOS-2-DOS (Central Coast Software)—make it ideal for exchanging data with other genealogists using foreign equipment.

While it would seem that the Amiga has every right to be the computer of choice for genealogists, the appropriate software has been somewhat scarce. Only two such Amiga programs are now available: Norgen ($99.95), from ***Norris Software***, and Your Family Tree ($79.95), from ***MicroMaster***.

The Acid Test

Hard-disk installation for both Norgen and Your Family Tree (YFT), each with its own installation script, leaves something to be desired. With Norgen, all you do is double-click the install icon, but only if your setup agrees with the drive and partition names in the script. Should you need to change the name of the drive or partition, you must use an editor to change the actual installation script, save it to your disk, and then execute the edited script.

YFT has no icon for its script, and the earliest versions did not run because of syntax errors. The latest version (v2.1) works well, but it still has no icon, and the instructions never mention the script.

Anyone who can fill out a form on a typewriter will find data entry extremely easy in either of these programs. YFT is a far more attractive program visually. Its screens are colorful and thoughtfully laid out. Norgen's screens are easy to understand, as well, but they are plain and unimaginative. The program would profit greatly from some good artwork.

Norgen, a family-based program, presents you with a page that stores the name of an individual, along with information about his birth and death, the names of both his parents and all of his siblings, the name of his spouse, with wedding date and place, a list of their children, and a section for holding free-form text about this person. The completed page covers the entire family of the subject.

Once you have entered the siblings and the children of an individual, Norgen automatically transfers that data to a family sheet for each of those siblings or spouses. When working from my oldest ancestors towards the present, I found this to work reliably. When working from the present to the past, I frequently received an error message saying that the record could not be found, and I had to retype all of the data. This is a really useful feature, but it needs to be more dependable. For all its intended ease of entry, Norgen re- ►

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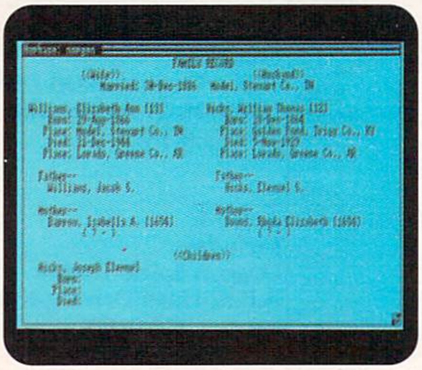
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quired me to retype many items that should be transferred automatically.

YFT is individual-based. It presents a page that asks for the name of the subject, the date and place of his birth, christening, death, and burial, his place of residence, his occupation, and his religion. After you complete the individual records of the subject and his parents, you link them into a family record on the screen provided. Then, all of the children of that set of parents are entered into another form, thereby linking all of the parents and children of a single family together.



Norgen lets you enter information about whole families.

This is a strong point in YFT's favor, because the data is easy to enter, and every screen shows you whether you have completed the information for the subject's family, parents, notes, and pictures. A click of the mouse lets you move to the next or previous individual, and a menu item permits you to jump to the record of any person in the database.

Who, What, When, and Where

Entering dates is frequently a problem area, and each of these programs expects you to use a standard date format, with Norgen being especially picky. YFT will warn you if a date does not match the format, but you can disable this function if you wish.

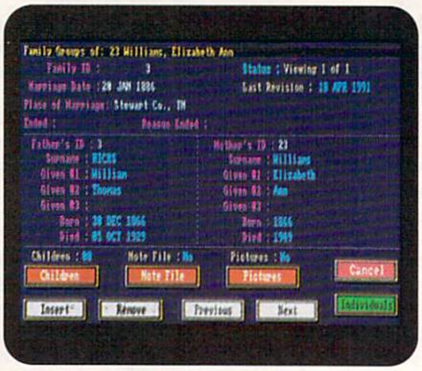
Norgen insists that every date follow the pattern dd-mmm-yyyy, but it accepts question marks for digits about which you are unsure, and it will accept years without months or days. This is helpful, but not nearly as useful as the before-about-after dates that can be used in YFT.

YFT accepts up to eight marriages per individual, and up to 40 children per couple. I entered more than 20 marriages and more than 40 children in Norgen and still found no limit. Both programs place length restrictions on names: Norgen allows 30 characters each, but you can use a function key to get more space. YFT permits three separate first names, each up to 20 characters, and allows 60 spaces for place names. Both programs provide unlimited note space for each family or individual.

Both Norgen and YFT rely far too heavily on the use of ID numbers. While YFT will permit you to assign any number you wish to any person, including Ahnentafel and Henry numbers, you must know the ID before you can link records. With a database of thousands of names, this is ridiculous. At least each program prints alphabetical lists of names from the database, with corresponding ID numbers. (YFT allows you to search by birthdate, as well.)

Neither program uses the Soundex system to account for variants in spelling, though YFT will permit searches using phonetic spelling. Norgen makes an effort to allow for spelling variations by permitting each person to have an alias.

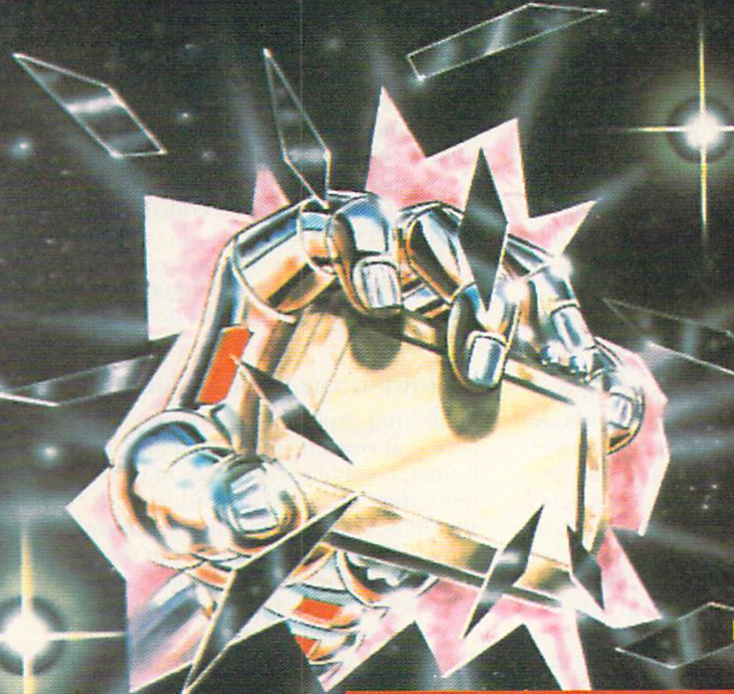
Both Norgen and YFT boast a unique feature: Each can store and display IFF pictures of any individual or document. With Norgen, you must assign a User-Defined Field in order to access this feature, with one picture per person allowed. On the other hand, YFT permits as many pictures as you like, and keeps track of them for you.



Individuals make up the branches of a family in Your Family Tree.

The most serious shortcoming of these programs is that they do not permit documentation of individual data items. Neither one has provision for a bibliography, and neither prints ►

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out documentation on any kind of report. This makes them unsuitable for professional use.

It is true that you can include documentation in the space provided for notes, but this mixes documentation of line items with narratives. It is clumsy and inadequate. There should be separate provisions for footnotes and bibliographies.

Another area that needs improvement is error identification. In YFT, I was allowed to marry off a ten-year-old child without a complaint, although it did warn about a child born before the date of the parents' marriage! Norgen did not seem to mind a wife born a hundred years before her husband, nor was it bothered by a child born after his parents' death. Also, whereas Norgen would not accept a duplicate record, YFT accepted one without so much as a warning. Although genealogists ought to be particularly careful, typing errors happen, and checking for them makes a program far more valuable.

The Search

Both Norgen and YFT can search their databases to locate any individual or group of individuals, and they permit the use of logical statements such as AND, OR, or EQUALS in order to select the individuals who fit the criteria. Each program lets you set up and save search criteria, and each offers extensive search options. Both programs' searching ability is outstanding for any genealogy program on any platform.

Norgen's reports are basic. It lists all individuals in the database alphabetically or by ID number. It makes pedigree charts, descendant charts (to 30 generations), family group records, and calendars of family anniversaries or events, and it will print out the entire database or search report. It also lets you print any screen with the touch of a key, and the results are attractive.

YFT's greater variety of reports includes descendant (to 99 generations) and pedigree charts, individual and family group sheets, and lists of individuals in the database. It also offers several forms of each of the standard charts. While it makes reports that are similar to Ahnentafel and Tiny Tafel charts, it does not follow the standard format required for them, and the reports made by YFT could not be used to exchange data on the NGS or FIDO bulletin boards.

I did not find the YFT default charts to be as nicely formatted on the page as I would like, but the reports can be printed to disk, and then edited in any word processor before printing. YFT provides many ways for you to customize reports, whereas Norgen merely prints them according to its default standard.

Throwing the Book at Them

Publishing genealogists require software that converts input data into book format, complete with tables of contents, footnotes, and page indexes. It should be able to combine the information in the database with that in the text base (and even the picture base, if possible) to create a book that takes very little editing. This facility is available for a number of genealogy programs for other computers, but neither Norgen nor YFT has attempted such a capability. Perhaps this will come later.

While the developers of both programs say that they will provide GED-

Continued on p. 102.

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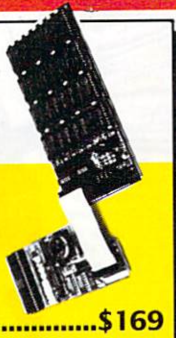
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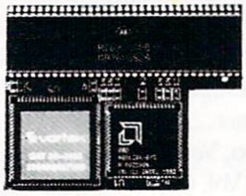




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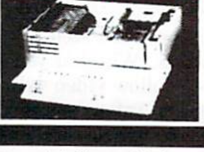
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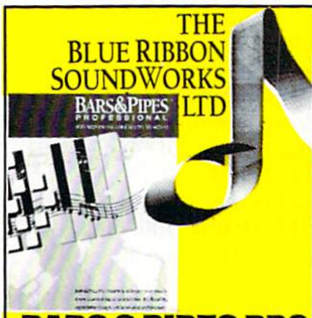
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From p. 96.
COM at some future date, neither program has it now. Had it been available, I could have moved my own database of a couple of thousand names into these programs, and could have told you much more about how the programs perform with large amounts of data. Instead, I had to type records into each program as though I were beginning from scratch.

GEDCOM is an invaluable aid to those who exchange data, which almost all genealogists do. Without it, one must manually enter every record obtained from colleagues. Norgen actually has a menu item for GEDCOM, but it is not yet implemented. YFT merely has a questionnaire asking if purchasers would be interested in buying it as an extra utility at a later date. These programs must have GEDCOM if they are to be of service to truly serious genealogists.

Comparing a program to an ideal wish list is tough, for no program will have all of the features on the list. Their lack of some desirable features, however, should not discourage you from using either of these programs if what they can do meets your requirements.

For beginning genealogists, for those who do not plan to publish, and for those who prefer working with entire families at one time, Norgen would be a good choice. For those who demand more, and who do not mind a higher learning curve, YFT is more powerful and dependable. Each of these programs answers various needs, and your choice should be determined by your own preferences and expectations.

RxTools

Puts a spin on ARexx.

By Dave McClellan

AREXX APPEARED ON the scene when the Amiga was badly in need of a good scripting language. Back then, the CLI was only slightly better than MS-DOS batch files (not good) for writing intelligent scripts.

While ARexx provides excellent program communication facilities, flow control, and variable string processing, its own user interface is somewhat primitive. With ARexx, you use the SAY command to display strings on screen and PULL or PARSE PULL to read strings in. This is a far cry from Intuition, but if you are only writing macros, aesthetics are not important. Because many of us use ARexx for all kinds of scripts—not just for editor macros—there really is a need for a more elegant interface. This is where RxTools ($54.95) from ***TTR Development*** comes in.

As a function host for ARexx, RxTools provides methods for creating Intuition-like windows that feature menus, gadgets, requesters, editing functions, file requesters, and the like. The object-oriented RxTools lets you pass messages and call functions through windows and other objects you create.

Strung Out

The RxTools' function host implements four ARexx functions: _send, send, kill, and self. The multipurpose _send and send functions implement RxTools functions by transmitting messages to RxTools classes and objects. For example, to open a window and place a string into it, you first create a window by sending an _OPEN message to the rx_console class. Then you send to the new window object the message:

"PUT_STRING" and a string:

```
new_win = _send( 'rx_console',
_OPEN, 10, 10, 200, 100,
     "Win", my_port )
   call send new_win,
_PUT_STRING, 'Some string text'
```

The _send function, which sends messages to classes, here sends the _OPEN message to the rx_console class with position, size, title and message port parameters. The send function on the other hand (no leading underscore), sends messages to objects created from RxTools classes. In the preceding example, it sends the _PUT_STRING message and a string argument to the window object new_win. Using these two functions, and knowing which messages return useful values, you can use most of Intuition from ARexx.

The other two functions are rarely used in ordinary programming. SELF returns a pointer to the RxTools function host and carries special messages. KILL tells the function host to exit and free up all script-created RxTools objects.

The following ARexx script demonstrates more available functions and implements a window for deleting or editing files.

```
/* Beginning of script */
rx_tools_init = getclip(
'rx_tools_init' )
interpret rx_tools_init
  /* Create and open window */
fwin = _send( 'rx_console', _OPEN,
10, 20, 200, 100, ,
  "Files", my_port )
number_of_open_windows = 1
  /* Create button gadgets */
call send fwin, _ADD_HIT_GAD-
GET, DEL_HDLR, 20, 60, 'Del'
call send fwin, _ADD_HIT_GAD-
GET, EDIT_HDLR, 100, 60, 'Edit'
event_handler = getclip(
'rx_tools_event_handler' )
interpret event_handler
  /* Event Handlers */
DEL_HDLR: procedure
  parse arg from_win
  f_req = _send( 'file_requester',
_CREATE, from_win )
  the_file_name = send( f_req,
_POST )
  if the_file_name ~= "" then
   'DELETE' the_file_name
  call send f_req, _FREE
  return
EDIT_HDLR:
  parse arg from_win
  f_req = _send( 'file_requester',
_CREATE, from_win )
  the_file_name = send( f_req,
_POST )
  if the_file_name ~= "" then
   'C:emacs' the_file_name
  call send f_req, _FREE
  return
CLOSEWINDOW: procedure expose
number_of_open_windows packet
  parse arg f_win
  call send f_win, _CLOSE
  call send f_win, _DELETE
  number_of_open_windows = num-
ber_of_open_windows - 1
  if number_of_open_windows = 0
then
    do
    call reply packet, 0
      exit 0
    end
  else
    return
  end
/* End of script DelEd.rexx */
```

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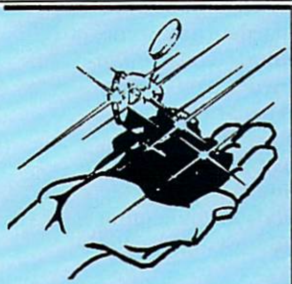
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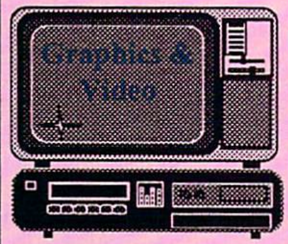
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The first line establishes the RxTools environment, including the constants needed for function calls. Then the script opens a window and records the number of open windows for exit processing. Then it adds two pushbutton gadgets to the window by sending it _ADD_HIT_GADGET messages. That message tells RxTools which ARexx procedures to call when the buttons are clicked (DEL_HDLR and EDIT_HDLR respectively), where to put them in the window, and what text to put into them (Del and Edit).

After installing the buttons, the next two lines correspond to event processing, which means watching for gadget selects and CLOSEWINDOW events. You must provide a CLOSEWINDOW procedure for any window with a close-button located in its upper left-hand corner. RxTools can selectively remove any system window gadget as long as you tell it to do so before you open the window. The interpret event_handler line loops until one of the procedures exits the ARexx script, which is what the CLOSEWINDOW procedure does at the end. It uses my_port, established in the _OPEN window call, to receive events.

The first procedure is DEL_HDLR. It is called whenever a user clicks on the "Del" button, with one argument—a "pointer" to the window containing the button. When it's called, DEL_HDLR pops up a file requester (via the _CREATE message to the file_requester class, followed by the _POST message to the new requester). If the file requester f_req returns a name, DEL_HDLR deletes that file; if the user selects the CANCEL button on the requester, it returns no name, and DEL_HDLR does nothing except free the file requester. After it finishes, DEL_HDLR returns to event loop processing so the script can wait for the next event.

The EDIT_HDLR procedure basically does the same thing, substituting a call to the emacs editor. The final procedure, CLOSEWINDOW, is called when the user hits the window's clos-button. It takes care of shutting down open windows and exiting the script.

The Full Course

Installing menus in a window is a little more involved up front, as you must name each menu-bar item and then describe all the menu choices belonging to it, including their respective procedures and shortcut keys. Processing menu events works exactly the same as the gadget event handling above. Simple requesters are not much more complicated. To build your requester, you merely _CREATE it and add each gadget to it (with its own procedures), along with two more procedures to be called when the requester appears on screen. The "req clear" procedure, which is called when the requester completes, is the one you use to extract the string or number or whatever your requester asked for, for use in the rest of the script. But if you get complicated, it can be a lot more work; more on this later.

Briefly, the rest of RxTools provides classes and methods for all sorts of gadgets such as boolean, string, integer, and proportional. These include notification boxes; borders and some simple drawing methods; console windows with accompanying page-viewer and editor methods (cursor move, cut/paste, search and replace, etc.); custom-screen and window methods; file-requester and directory-listing methods; and methods for managing the RxTools function host and RxTools classes.

There are also some nice data structures present that you can use as well—a doubly-linked list class, an AVL tree, and bag and stack classes. These come with a minimal "class browser" to help determine all the messages these classes and objects accept.

Not everything, however, is rosy with RxTools. The manual is not nearly thorough enough to describe the product, and it counts on the browser and your own intuition a little too much. The 80-odd page booklet is full of programmer-ese (the implementer wrote it), and while it starts off with a couple of acceptable tutorials, it finishes with an incomplete reference section that lists only the commonly used messages of most classes and their parameters. Not nearly all the messages are present, nor does it go into some more complex programming, such as that needed for calling hand-built requesters from within gadget-handlers—I hung up a script a few times doing that.

The manual relies on your using the browser to determine all of a class's messages. The browser is an ARexx script that can either list all classes (and phylums—parents to a set or class), or a single class's messages and argument types. It is woefully insufficient. TTR does provide a decent set of example scripts, but they cover only the basics of using the various classes.

In the company's defense, TTR is remedying this insufficiency. I called ►

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their support number with a few questions, and they not only had answers, but they also set me up on their support BBS to download a bugfix release of RxTools. (TTR's BBS is available to registered users of the product.) TTR also told me that we can expect a completely overhauled manual. By the time you read this, a new several-hundred-page reference book should be ready, along with an improved version of RxTools.

In conclusion, I like RxTools. ARexx has needed something like it for quite a while, and RxTools lets you access almost all of Intuition with a fair degree of precision. When the new manual is out (perhaps this fall), it will be a great programmer's tool. But until then, purchasers should be prepared to spend a lot of time doing guess-and-try-it programming.

PROTEXT

Give us the word!

By Bill Frazier

WHEN IT COMES to the heavy-duty mechanics of traditional word-processing programs, Protext ($199.95, ***Arnor/ MichTron***) excels. In addition to the standard text manipulations, it automatically generates tables of contents from text headings and indexes from marked words or phrases. It plows through multiline footnotes and endnotes, handles headers and footers in neat fashion, and supports mail-merge and a variety of other advanced word-processing features. Best of all, Protext is easy to learn and simple to use. In short, the program is versatile enough to meet the demands of advanced users and beginners alike.

Where it falls down, however, is in the area of Amiga-specific features and feel. It suffers from port-over hangover, lacks true WYSIWYG screen display, and does not incorporate graphics with text.

Let's look at the pros and cons of Protext a little more closely and see how it fits into the repertoire of existing Amiga word processors.

WHAT YOU GET

The entire package comes on three noncopy-protected disks—program, dictionary, and printer drivers—each



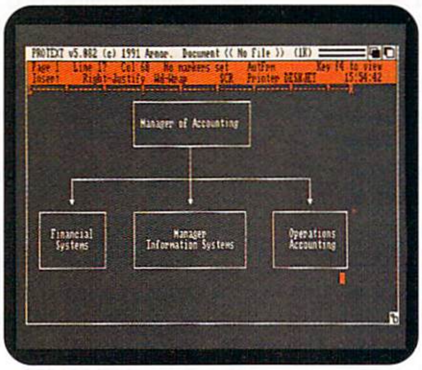
YOUR TURN!

Protext's best feature is it's macro capability. It's a real time saver and a convenience I've come to depend upon.

Cheryl Rieck
Indianapolis, Indiana

of which you can easily install on your hard drive with the provided script. The three-volume manual comprises a tutorial, a guide to the printer drivers, and a User Guide and Reference.

Once installed, Protext's system configuration lets you select and save your own default start-up preferences. The program requires a minimum of 1MB of RAM and Workbench 1.2 or later. Although ignoring the Workbench printer drivers in favor of Protext's own drivers may seem redundant at first, the developers actually provide a great service by including every option available for each of the 150 popular printers that Protext currently supports (with more of them under development).



With Protext, you can draw boxes around text to make flowcharts.

The manuals supplied with Protext are among the most complete and easy to use of any I've worked with. They are arranged logically, include an extensive table of contents and index, and are simple to read and understand. The occasional use of "whilst" and similar words reflects the program's origin, but the User Guide as a whole is an excellent document. All manuals were created using Protext, and they provide further proof of the quality output possible when using this program.

Following Intuition guidelines, Protext provides the usual Amiga menu line and includes a large number of pull-down menu items. Nearly all menu selections are accessible to experienced users by way of keyboard shortcuts.

Protext provides a file-menu selection called Catalogue Files, which, when selected, displays a full screen showing the contents of the current directory. From this screen it is possible to open, view, erase, rename, and copy files. You can change the directory being shown at any time. It is also possible to display a graphic directory tree from this screen. Using this feature, you can manipulate files may in almost any manner you wish.

If you need to produce a simple box around text or to draw lines (with or without arrows), within a document, Protext provides the tools. Pressing the proper function key allows the cursor keys to double as line-drawing keys. This option makes it easy to box items and set them off from the text or to produce simple organizational charts. Printed lines are clean and smooth, without jagged edges.

Using Protext's Programming mode, you can write source code for assemblers and compilers or set up auto-indenting routines. Auto indent modifies the action of the Return key so that instead of going back to column 1 in the normal way, the cursor will return to the column that contains the first nonblank character in the line above.

NOT PICTURE PERFECT

Protext does have a problem or two. Primary among these would be the lack of true WYSIWYG text layout on the monitor. While the program takes advantage of nearly every resident font available on whatever printer you happen to be using, it limits the text shown on the screen to just one size—making it difficult to visualize what the final product will actually look like.

Protext does offer one unusual feature, although its implementation falls short of being useful. It can look up anagrams (words in which the letters are transposed to form an entirely new word), albeit slowly.

Another drawback Amiga owners may find hard to do without is Protext's inability to incorporate graphics or clip art with text. Today, most of the top Amiga word processors provide this feature, and this alone could influence

some Amiga users to shun the program.

Although Protext provides excellent spell-checking, it does not include a built-in thesaurus. Many word-processing programs now have such a feature, and I find myself using a thesaurus more and more each time I write. While you could use a stand-alone thesaurus program with Protext, this is not a very convenient solution.

Protext does not have the "look and feel" of a native Amiga program. Because it is available on a number of other systems—including MS-DOS machines and the Atari ST—you can transport documents created on one system for use on any other platform supported by Protext (either directly or by use of a conversion program). Such portability will be of value to many, but it is also reflected in the program design.

The value of any word processor lies in its ability to easily produce attractive, quality documents. Protext does this, using the fonts and options available on any printer you happen to be using. If you can put up with the lack of certain features that most Amiga users have come to expect, Protext is an excellent word processor.

InfoFile

Less for less money

By Greg Morris

DO YOU FIND yourself buried under a mountain of papers and notes that somehow have to be organized in a reasonable manner? InfoFile ($69.95), a database program from ***The Disc Company***, attempts to create order from disorder. Whether you are dealing with budgets, phone numbers, mailing lists, or even a video collection, InfoFile can help you organize your information for easy retrieval whenever you need it.

You define your database by setting up columns and rows containing numbers, text information, dates, or calculations, depending on your need. Called the "List" screen, this arrangement of columns and rows gives you a total view of the database and allows you to display selected information. Via simple mouse movements, you can easily make changes in your List screen—vary column widths, reorder columns, and so on—although certain more complex revisions may involve additional intermediary steps. A variety of column formats is available for displaying financial and date information, which increases the flexibility of the program.

The "Form" screen is used to enter data into the database. Unlike the List screen, it shows just one entry in the database and its associated fields. For instance, in a mailing-list database, you would see such fields as "Name," "Street," and "City" for a particular person. The Form screen offers the same kind of flexibility as the List screen in that you can adjust each field's position, increase or decrease its size, and more. Just point and click with the mouse on any field, then enter or modify information from your keyboard.

Once your data-entry phase is complete, you can return to the List screen and manipulate the data you just entered. InfoFile allows you to perform various operations on your data, including sorting and searching of information. For example, if you create a mailing list and want to see only those people from Los Angeles, you would first click on the column that represents the city, then proceed to the ►

menu by pressing the right mouse button and choose to search "by example." A requester appears, asking what you are searching for. You can search not only for exact matches, but also for those that are "greater than," "less than," "not equal to," and so forth—which is especially useful when you want to display numerical items within a specified range. In a real estate database, for instance, you could use this feature to display only those houses costing between $200,000 and $300,000.

You can save each InfoFile request to display specific criteria to disk as a "View." One View might always show a sorted list of names, while another could display only people named Jones who live in Los Angeles. Views make it easier to use the same database for displaying different aspects of information without having to select the various options every time you need them.

InfoFile allows you to print information in two ways. In List mode, it prints your information in row-and-column format, much like the List display you see on the screen. In Form mode, however, the program prints labels in whatever format you choose according to the way you move the fields around on the screen with the mouse.

Picture and Sound Refererences

In addition to more standard database functions, InfoFile provides some unique features, including the ability to store references to picture or sound files in the database. When you click on a reference to a picture file, InfoFile displays that picture on the screen. Similarly, by simply clicking on the name of an audio file in the database, you can hear the actual sound produced through the Amiga's audio port. This capability adds new dimensions, for example, to databases set up for music collections, because you can store not only text information about the music, but also the actual digitized sound.

InfoFile's user interface works well, and its response to keyboard input is fast because the program keeps the entire database in RAM as long as there is enough memory available.

While InfoFile functions well for its intended purpose, it lacks the sophisticated features of a professional database program. It works best as an electronic index-card file system. For the price, you can hardly expect the power and features of a Superbase, but the fact remains that InfoFile is a generation behind current database programs. An example of its backwardness is its option to "set system date/time," a useless function unless you have an Amiga 1000, which does not have a battery-backed internal clock.

The 70-page manual covers the product in a satisfactory fashion, including a tutorial as well as several examples. The program provides several sample databases and Views on disk to get you started, while also detailing some of its possible uses.

If you want to organize data in a simple fashion without a lot of bells and whistles, InfoFile could fit your requirements, especially if you use picture and sound files that you would like to retrieve directly from the database. On the other hand, if your database needs involve extensive manipulation of data and elaborate printing capabilities that go beyond basic lists and labels, you would be better off with a more sophisticated relational-database package.

AUDIO ENGINEER PLUS SOUNDMASTER

Eight-bit hold-outs.

By Micheal Hanish

WHILE THE WAVE of the future in sound may lie with the emerging 12- and 16-bit audio-digitizing technology, two recent arrivals on the sound-sampler market prove that 8-bit technology is still alive and kicking. Both Audio Engineer Plus ($349, ***RamScan/MicroPace***) and SoundMaster ($199.95, $99.95 without software, ***Oxxi***) produce excellent samples for playback at just about the highest level that the Amiga's native sound capabilities can handle.

Ironically, both samplers ship with virtually the same software controller, namely, Oxxi's AudioMaster III, although RamScan refers to its software as Audio Engineer (the hardware is called Audio Imager). The superb sample-editing features of AudioMaster III have been well documented in previous issues of *AmigaWorld* (see Mar. '91, p. 13, for a complete review, and also "Accent on Audio," p. 42 in this issue). Suffice it to say that by using AudioMaster III, you can do virtually anything you wish to the sample with the utmost precision and speed.

For the purposes of this review, we will focus on the hardware capabilities of each sampler. In a strict sense, a comparative review of the two packages is not quite fair, as Audio Engineer costs quite a bit more than SoundMaster. While the former holds a narrow performance edge, the latter represents good quality at excellent value.

SOUNDMASTER

SoundMaster is a 1×4×6-inch box that attaches to your Amiga's parallel port with a meter-long cable. The unit's input-level slider and the overload LED are located on the top panel along with the microphone-level inputs. The slider's long, smooth track controls both microphone- or line-input channels simultaneously. You can easily make software adjustments to the balance after recording a sample, but you will get the best results by using a mixer. The actual sampling is done by one analog-to-digital converter, rapidly switching between channels to achieve stereo.

SoundMaster's line inputs are actually RCA jacks, the kind found on virtually all audio equipment from CD players, tape decks, amplifiers, to camcorders. The microphone inputs are high-impedance mini-plugs, which I found to be somewhat noisy. Both sets of inputs automatically produce mono samples when you make a connection to the right channel only. You activate the internal microphone by pressing a hot-key combination before sampling.

The internal microphone can remain active simultaneously with other inputs, which makes it possible to produce, for example, a voice over a stereo sound effect. In practice, however, I recommend avoiding the internal microphone as it is low-fidelity and omnidirectional. The microphone's proximity causes it pick up computer noises. It would be far better to use an external mixer or even one of the microphone inputs.

All in all, SoundMaster functions quite well. The long cable makes desktop placement and control easy. The

Continued on p. 113.

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From p. 109.
overload LED gives you a fairly accurate indication of your hardware's peak saturation point. If you use the LED with the software's sampler controls, you can get samples with as wide a dynamic range as the original. The hardware has a dynamic range of about 48 dB and a wide frequency response (20–20,000 Hz); this is plenty of leeway for capturing sounds in all their fidelity with a minimum of cross talk.

There are, however, two questionable items concerning the hardware design. While an uncommon feature for samplers, parallel-port pass-through really should be provided. Without pass-through, you are forced either to power down and change connections or purchase a switch box (which can add noise) in order to use a printer. The second design feature of which I became wary concerns the input plugs located on top of the unit. Because these are facing up, they have the potential to become dust catchers (if unused).

Audio Engineer Plus

The GSOFT Audio Imager, the hardware part of the Audio Engineer Plus package, offers a much more rugged and feature-packed design, at a higher price. The main controls, left and right input level knobs and mic/line selector switches for each channel, are on the front panel of a 6½×1½×6½-inch metal box. It attaches to and gets power from the parallel port with a cable 1½ feet long. The front panel also provides mini-plug, mic-level inputs (high impedance) and an LED overload indicator. Audio Engineer's line inputs are located on the rear panel, along with a parallel-port pass-through that's controlled by a switch on the front panel. Since each channel can accept mic or line-level inputs independently, it is easy to combine and control sources without a separate mixer (although they are helpful when sampling).

There are two analog-to-digital converters, one for each channel, yielding noticeably better sample fidelity and less cross talk. The level-control knobs have a large adjustment range to accommodate a wide variety of input levels. While these produce some noise during initial use, it disappears after they rotate a few times.

If you need to adjust the DC offset (bias adjustment), you can do so with a small recessed screw on the real panel. This operation is part of the set-up procedure, done with a supplied program, to prevent residual line noise as a result of excessive preamplification.

Audio Imager's dynamic range is more than 48 dB, and frequency response goes way beyond the usual 20–20,000 Hz. With Audio Imager, you will get samples of a quality that very likely surpasses most requirements. Even the most complex stereo samples are clear, well-defined and accurate, with virtually no cross talk. Even when resampling, yields are very small and very clean.

Pick a Sample, Any Sample

It's an interesting exercise to be able to compare two different pieces of hardware designed to work with essentially the same software. The software is excellent, and you won't be disappointed with either piece of hardware. Both are very good in design and performance. The Audio Imager is superior by a notch in engineering, design, and results, although I found SoundMaster's extra cable length convenient. SoundMaster does an almost equally excellent job and costs less. Consider your needs and your budget. ■

B A C K T A L K

CANDID RESPONSES TO *AMIGAWORLD* REVIEWS

Image Manipulation Gone Haywire

I must bring to your attention statements appearing in the September issue which are inaccurate and/or misleading to your readers. Additionally, I call into question the journalistic ethics of printing clearly skewed comparison articles under the guise of objective reviews. The "review" of RasterLink by Mitch Wells is one example.

An objective review does not normally begin with several paragraphs describing the failings of other products. In fact, responsible journalists tend to limit references to other products (good or bad) only when writing comparisons.

When these ill-placed paragraphs contain falsehoods, they reflect very poorly on your publication. To wit: "Besides all that, ADPro will not display 24-bit images." ADPro, in fact, directly supports 24-bit display devices that are mentioned in the article (Firecracker and Harlequin) as well as a number of others.

Another error occurs when the author says that he cannot work with an image larger than a single screen even though he has 7MB of memory. Well, with only 5MB of fast memory, ADPro owners can manipulate true color images larger than 1024×1024 pixels. This is considerably larger than "a single screen" size of 768×480.

Another misrepresentation occurs in the very next paragraph (beginning "Thankfully...") where Mr. Wells suggests that for $199.95, the RasterLink purchaser gets the ability to directly control Targa display boards and film recorders. Checking with the "Amazing Computing Buyers Guide" reveals that TGALink (sold separately) is an additional $299.95, and CineLink (sold separately) is another additional $299.95. Mr. Wells specifically states that these are included capabilities "not found in other image-conversion packages."

The review points to the ability to process images in small chunks as being an unmitigated advantage of RasterLink. The article fails to point out that disk-based processing is slower in performance. Fast performance is something which animators require and other products deliver. Further, the reviewer does not mention any of RasterLink's memory failings.

In summary, your magazine stands as one of the front running publications in the Amiga market. Your editorial policies should also be first rate. Unfortunately, they are not. You instituted a policy of "fact checking" when you joined *AmigaWorld*. Clearly that policy is not being carried out as checking with either Active Circuits or ►

ASDG would have alerted your editors as to the serious deficiencies in this article.

— *Perry Kivolowitz*
ASDG

Editor's Notes: Perry makes a number of very valid points. Some of our statements about ADPro could be misinterpreted. Our fact checking sometimes fails, and when it does, we admit it. In this case, since the review was not of ADPro, the AmigaWorld *staff did not check these facts with ASDG. In the future, we will check facts with manufacturers even if they are not the focus of the review.*

—Doug Barney

Due to space constraints, several lines of text were cut from Mitch's introductory material including "ADPro will allow display of 24-bit files provided you have the proper hardware combination like the Mimetics FrameBuffer of the Impulse Firecracker 24).

While editing, too much was cut thereby changing the meaning. This is unfortunately the case with this review. My apologies to Mitch.

—J. Jackson

On Time

We take issue with several parts of August's Video Suite column, where the IVT-7 and IVT-9 Plus TBCs are concerned. The first prominent error in the article that both the IVT-7 and IVT-9Plus have their Proc AMP controls located behind the front panel. This is incorrect. Only the IVT-7 has the Proc AMP control behind the front panel.

Then, the article states that the Proc AMP controls would not eliminate fuzziness. Eliminating fuzziness is not the function of the Proc AMP. Fuzziness is sometimes caused by misadjustment of the noise reduction pot VR-10. Correct adjustment of VR-10 and R-Y, B-Y balance should remove fuzziness as indicated in the operational manual of the unit.

—Joehan Tonkingkeo
I.DEN Videotronics

Note: The placement of the Proc AMP controls became a bit confused in the rewriting process. Concerning the fuzziness, I did not mean to imply that the Proc AMP controls would eliminate fuzziness, we tested all the units without opening them up and fiddling with the internal settings. We did perform all the phasing and timing adjustments externally. If the noise reduction circuitry is that in need of adjustment, perhaps they should consider designing more accessable controls. All in all, the VRT-7 amd IVT-9Plus performed quite within reason, they just performed on the lower end of those tested.

—Mike Hanish

Yakkity yak...*do* talk back! Send your comments on reviews to Back Talk, *AmigaWorld* Editorial, 80 Elm St., Peterborough, NH 03458. Letters may be edited for space and clarity. ■

AMIGA PROFILE

Mighty Mouse and the Amiga



CARTOON HERO MIGHTY MOUSE is usually created with the traditional method, a pen and a piece of paper. But for parts of "Mighty Mouse, In the Mode," artist Ernie Colón used another tool; his Amiga.

The change made sense for this particular Marvel Comics episode, since the Amiga is a central plot element. It also suited Colón, a cartoonist with 38 years of experience, who ditched his Macintosh II a year ago in favor of an Amiga 500.

We got an early black-and-white version, which gave us a jump on the story, most of which we are willing to share. Mighty Mouse, a computer neophyte, visits a school and confronts this new "educational tool." Once alone with the Amiga, our fearless mouse is sucked inside the computer's circuitry, which leaves a tell-tale burp on its monitor.

Come to find out, Mighty Mouse has been drawn in by the wily Dot Matrix, who wants him to defeat a giant viral worm that threatens a huge computer network. The self-absorbed mouse has no interest in saving bank records or military codes, but when he hears that baseball statistics are in peril, the cartoon rodent springs into action.

Before defeating the slimy intruder (had you any doubts?), Mighty Mouse confronts a huge pile of worm parts in the shape of floppy discs, zips through a maze, and gets caught in a huge grid. Just as Popeye has his spinach, Mighty Mouse eats a special snack that gives him extra power.

All's well that ends well, and the kids' favorite mouse comes through unscathed and computer literate. Look for the issue wherever fine periodicals are sold.

And look for more Amiga art from the man behind the lines of Casper the Friendly Ghost in upcoming comics. He has already upgraded his A500 to 9MB of RAM, and has added a scanner, hard drive, DeluxePaint III (Electronic Arts), and Sketchmaster drawing tablet (Dakota Corp.).

Colón's ultimate aim is to create full color, high-res frames that are photographed and turned directly into the finished comic, leaving pen and paper entirely behind.

—Doug Barney

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Featured Disk

FD39a & b: Star Trek, The New Generation - This is a, completely different version of Star Trek than that found on FD12. This one was created by the German author Tobias. Now with English instructions. Very Excellent!!! Counts as two disks.

New Disks

FD66: GameTease2 - Contains playable demos of ChuckRock and Torvak
FD65: GameTease1 - Contains playable demos of Atomino and Turrican II
FD64: Games - Wizzy's Quest - a "great" 50 level game with great graphics, Cubus - a 3-dimensional Tetris type game (rotate and move in 3 dimensions). Husker Du - Colors and pattern rather than shape in this Tetris-esque game; 5 screens and 3 levels of difficulty. Requires Fat Agnus (1 Meg of Chip)
FD63: Quizzsho!; an interactive multimedia quiz game show program that tests your knowledge of DpaintIII. The questions can be changed so you may quiz on whatever topic you'd like.
FD62: PomPom Gunner. An extremely smooth and well done World War II gunner simulation. Requires 1 meg chip memory.
FD61: Games Solitaire; great graphics, plays two versions. Klide; an interesting piece of eye candy. Extreme Violence; 2 player kill or bekilled game. YATC; A Tetris clone with Artifical Intelligence. Genesis; create realistic 3d fractal worlds.
FD60: Games In Nebula, race over a 3d world to destroy enemy installations. Interferon; a great Dr. Mario clone. Enigma; is it a gameor a puzzle?
WB97: Molecule3D - An Interactive 3d solid modeling program for molecules; creates stunning 3D pictures of molecules. Disk also includes a mailing list manager.
WB96: Dupers - Contains XcopyIII & Nib which will backup copy-protected programs. FreeCopy removes copy protection from several programs, and SuperDuper will crank-out fast AmigaDOS copies.
WB95: Checkbook Accountant 2.0 This program is definitely commercial grade; we've seen many checkbook programs and this is absolutely the best. Full budgeting, transaction recording and report generation.
WB93: Workbench Extras #2 This disk contains the utilities that Commodore should have shipped with the Amiga; VirusX4.0, Snap, FixDisk (recover corrupt/deleted files), Disk Optimizer (floppy & hard), MachIII (screen blanker, hotkey, mouse accel., macro, clock utility), GOMF (a gurubuster)and PrintStudio.
DD80: VFont System - A font rendering system that extends the Amiga so that it will be able to use vectorized outline fonts. Fast rendering, rotating, and sizing. Use in your own programs!

Other Great Disks!

FD5: Tactical Games - BullRun - a Civil war battle game, Metro you play the role of a city planner. Build wisely and your system will be a success, but poor planning will lead to disaster and financial ruin. Very very habit forming.
FD6: GAMES! - This disk is chock full of games including; Checkers, Clue, Gold - A new slide the pieces puzzle, Jeopard - An enhanced version of Risk, RushHour - Surprisingly addicting, and SpaceWar - Best described as a cross between Combat-Tanks and asteroids.
FD7: PACMAN - This disk contains several pacman type games including; PacMan87, MazMan and Zonix.
FD9: Moria -. This has great graphic controls, multiple spells, similar to Larn and Hack. Play time several weeks!
FD10: HackLite - A dungeon adventure game. Considered a must-have classic. This is the second release of this game on the Amiga. Great graphic interface. Play time several weeks!
FD11: Las Vegas and Card Games - Las Vegas Craps - The best Las Vegas Craps simulation every written for any computer. Contains extensive HELP features, Also Thirty-One,VideoPoker and more.
FD12A,FD12B: Star Trek, The Game - This is by far the best Star Trek game ever written for any computer. It features mouse control, good graphics, digitized sound effects and great gameplay. Counts as 2 disks. Req. 1Mb and two drives (or hd).
FD13: Board Games - contains multiplayer Monopoly, Dominoes, Paranoids, and others.
FD14: Dungeon Master Hints and Arcade Games - DM maps, spells, item location, and hints and more, also on this disk, Hball - an arkanoid/breakout type game, Trix - a Qix type clone.
FD17: Educational Games - This disk includes several games for the younger members including geography, math, science, and word games, also includes Wheel of Fortune.
FD20: Tactical Games - MechForce(3.72); A game that simulates combat between two or more giant, robot-like machines. Simple words can't begin to give you the feel of piloting a 30 - 40 foot tall, fire breathing, earth shaking colossus that obeys your every whim.
FD26:Arcade Games - Marble_slide, this is a truly commercial quality game. Similar to a Lucas game named PipeDreams, excellent playability and entertainment, Mutants , a small version of the arcade game of the same name, also SuperBreakout a pong/arkanoids type game.
FD27: Arcade Games - This disk is loaded with some great games. Includes, Raceorama a great racing car game with ten different courses, MiniBlast a helicopter gunship type clone, Shark in the same class as froger, and SBreakout the original breakout with more.
FD29: Shoot'em up's - WWII - you're the pilot of a WWII plane flying through enemy territory, you've just been spotted, good luck on you mission, SpKiller - try and penetrate enemy lines with this game, and Retaliator - another great game.
FD31: Games! - Air Traffic Control - a good ATC simulation game, Black Jack Lab - a full featured set of card games, ChessTel - play chess with your friend in distant and remote places with this game and a modem, labyrnth - a well done text adventure game (like an infocom game), and MouseTrap - a 3d maze game.
FD32:Flight Simulator - Includes an instrument flight simulator for a DC10.
FD33: Arcade Games - Ffreddy a mario brothers type of game, Gerbils a target practice game, PipeLine a German interpretation of Pipe Dreams, Tron a light cycles version, and wetroids a wonderful version of asteroids with a hilarious twist.
FD35 Omega (v 1.3) - A new outstanding dungeon and outdoors adventure game in a similar vein as hack, rouge, and moria. This version is considerably faster and better that all previous versions. Play time several weeks or months.
FD37a & b:Tactical Games - Empire (2.2w) This great game comes highly recommended. With a full-graphic front end.
FD38:Games - Cribbage Master - A great cribbage game and tutor, Spades - a well done card came, ChineseCheckers - A computer version of this classic, Puzz - a slide piece puzzle game and construction set.
FD44: Game - Mechfight is an out of this world role-playing adventure comparable to hack and moria. The setting, interplanetary colonies and space stations. In your quest to explore the world, take time out to liberate bad guys of their most valuable possessions, engage in a mortal combat or two against robots and alien life forms, pick up a new amiga 9000. Most of all, don't forget to stay alive...
FD49:Chaos Cheats - This disk contains an everything you wanted to know about cheat set for Chaos Strikes Back, including full maps, spells, object locations, super characters and more.
FD50: Submarine Game - Sealance, one and a half years in the making, this is an outstanding submarine tactical game. Commercial quality, highly recommended.
FD52: Classics Games - PetersQuest a well done Mario brothers type of game, Jymbc a two player missile command clone, and Vstank a tank commander game.
FD53: Great Arcade - On this disk is a wonderful implementation of the ever popular classic arcade game Defender. Also contain Air Race a WWII flying ace arcade game, and Psycoblast new creation idea game.
FD56: Arcade - Includes SpaceWar, HueyRaid a well done helicopter arcade game, and PowerPong a great expanded pong game.
FD57: Arcade Games Includes 2 true commercial quality games. MegaBall is the successor to Ball; features 5 full musical scores, multiple levels and addicting gameplay. Gravity Attack is a psychadellic trip through several different worlds--each distinctly different.
FD58: GAMES! Includes Steinschlag; a great Tetris clone from Germany with music. SCombat: simulate battle between up to 40 players & monsters. Imperium Romanum: Battle up to 4 players for control of the Mediterranean in this Risk-esque game.
FD59: Game Potpourri Xenon III is an almost exact clone of the commercial game of the same name...a great shootemup. Crossword will take lists of words & automatically generate crossword puzzles for any Epson compatable printer.
WB4:Telecommumnication - This disk contains several excellent pd communication programs designed to get you on line quickly and easily, Access (1.42) - A very nice ANSI term program based on Comm v1.34, but with the addition of transfer protocols, Comm (1.34) - Last version of one of the best public domain communications programs ever made on the Amiga, Handshake (2.12a) Handshake is a Full featured VT52/100/102/220
WB5 - Fonts #1- Several fonts (35) for the Amiga, also included are five PageStream fonts,and ShowFont - a font display program.
WB6: Video Fonts #2 - ShowFont(4.0) This program allows you to quickly and painlessly view all 256 characters in a typical font. Large AmigaDos system fonts (many up to 56pts).
WB7: Clip Art - This disk is loaded with black and white clip art. Art includes, trees, watches, tools, US and State maps, and more.
WB9:Icons - Truly a multitude of various types and kinds. Also includes IconMiester, IconLab, and others great utilities to help generate icons.
WB10:Virus Killers - The latest and best VirusX(4.0), Kv(2.1), and ZeroVirus(1.3).
WB11: Business - Clerk(4.0), finally a full featured business accounting PD program for the small to medium company. Includes receivables, payables, end of month and uch more.
WB12: Disk Utilities - This great disk is loaded with wonderful utilities for everything including making disk labels, disk cataloging, disk optimizing, disk and file recovery archive and organizing, and all sorts of file manipulation. A must have!
WB13: Printer Drivers and Generator - over 70 different drivers, and if these don't do it, with PrtDrvGen you can make your own.

WB14: Video- on this disk are several utilities for the video enthusiast. We have included multiple slates, video titling, Bars and Tone, Gray Scale, Screen fades and swipes, Interlace toggles, and SMPTE Calculators .Also on this disk is a full featured video cataloging program.

WB15: Business - This disk contains a spreadsheet, a database, a project/time management program and financial analysis (stocks).
WB16: Business - This disk contains an inventory manager, a loan analysis program, a great calendar/scheduler, a rolodex program, and pennywise a good "Cash Book" accounting for home or office.
WB18: Word/Text Processors - This disk contains the best editors. Includes,TextPlus (v2.2e) a full featured word processor, Dme(v1.35) a great programmers editor with strong macro features,TexED(v2.8) an enhanced Emacs type editor, and a spell checker.
WB20: General Interest - DiskSalv V1.42 a disk recovery program for all Amiga file systems, FixDisk V1.0 another file recovery program with features DiskSalv doesn't have, 3DLookt gives a 3D appearance to your WorkBench, Clean V1.01 a program to de-fragment memory, Tracer - trace any part of an image.
WB22: Fonts #3 - Several more great fonts. These, like the other font disks work great with Dpaint and WYSIWYG word processors.
WB23: Graphics and Plotting - Plot (20b) a three dimensional mathematical function plotter. Can plot any user defined function, BezSurf2 - produce awesome pictures of objects one could turn on a lathe. Can also map iff image files onto any surface that it can draw. Now compatible with most 3D packages, and VScreen - makes a virtual screen anywhere, great for DTP .
WB25:Educational - On this disk are two programs that can generate maps of differing types, World Data Base uses the CIA's data base to generate detailed maps of any entered user global coordinates. Also Paradox a great demonstration of Albert Einstein General Theory of Relativity.
WB26: Disk Utilities #2 - MrBackup, KwickBackup - two well done utilities to help with harddisk and floppy disk backups, FileMast - a binary file editor, Labelprinter - Disk label printer with very powerful features.
WB27: Nagel - 26 Patrick Nagel pictures of beautiful women.
WB29: Graphics and Sound - This disk has several different Mandelbrot type programs for generating stunning graphics. Includes, MandelMountains - a realistic terrain generator, Fracgen - generated recursive fractals from user input, Mandelbrot and Tmandel - two fast mandelbrot generators, also Mostra - the best IFF display program to date, will display ALL IFF's including Dynamic HAM, and Sound - a great IFF sound player, will play anything. Try this disk!
WB33:Circuit Board Design - several terrific routines for the electronic enthusiast, Including PCBtool - a circuit board design tool, LogicLab - circuit logic tester, and Mcad (1.26) a well done new release of this PD CAD program, now comes with predrawn common circuit components for insertion into schematics.
WB34: Utilities - Several well done utilities, some will require moderate knowledge of a CLI or Shell for setup, Chatter Box - this one will play any user defined sound after any event (ie. disk insert, mouse click, disk removal...), , Artm - The Amiga real time monitor, gives you full control of the Amiga OS, very powerful program, Helper - help program to make learning the CLI easier, and more!
WB35: 3d Graphics - This disk contains several neat programs to use with your 3d modeling/raytracing programs 3dFonts - Full vector font set for use with 3d programs, FontMaker - make 3d fonts from any system font, Make3DShape - create 3d shapes from any image, DumptoIFF - create 3d animations preserves pallet, and

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WB35: 3d Graphics Cont.- World3d - a demo program of a front end for use with DKBRender.
WB36: Graphics - On this disk are several programs to create stunning graphical images including, MPath - creates swirling galaxy images, Roses - produce an unlimited number of variations of images that a symmetrically similar to a rose, SimGen - display those spectacular images as part of your workbenck screen, and RayShade - a very good raytracing program, create your own beautiful 3d graphic models with this one! **Wb37: Educational** - Educational games and puzzles that cover math, geography, spelling, and books. Ages 6 - 15
WB38: Plotting and Graphics - Plotxy is the most powerful full featured plotting package. Used by many colleges and universities. A welcome addition to our library! Highly recommended. Plans - a incredibly well done Computer Aided Drafting program, very full featured. Tesselator - a program that helps generates fantastic looking, recursive M.C. Ecsher type pictures.
WB39: Music - Intuitracker is a German offering of an exquisitely well done program that allows you to play music on your Amiga with CD like controls. Lets you strip out music from your favorite games or others and include them in your music library.
WB40: Music - "CD on a disk", 90 minutes of modern music on this well presented collection.
WB41: Music - MED an incredibly well done, full featured music editor. Create your own stunning music directly on your the Amiga. Similar to SoundTracker but better. Very powerful easy to use program.
WB43:Business - This disk contains AnalytiCalc - probably the most powerful spreadsheet program on the Amiga. A full featured spreadsheet with many features expected in a commercial package. Requires 1.2 MB of memory!
WB46:Clip Art - HighRes clip art with the following motifs - embellishments (borders, dodads ,...), people, and transportation.
WB48: Clip Art - HighRes clip art with the following motifs - Holidays, music, medical, and misc.
WB49abc:Animation Sampler - On this three disk sampler set (counts as two disks) are some of the best animations that have been created over the last three years. Several examples of "Movie" type animations some with spectacular raytraced reality (coolroby, watch, spigot and egg). Also several european style or "Demo" animation with incredible graphics and outstanding electronic music (akrilight, copersine, doc, dps2010, impact, and logodemo). These truly show off the creative edge of an Amiga!

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WB50: Animation - Seven of the best european style animations or "Demos", including - scientific 451, subway (a U.S. entrant, also our favorite), sunride, thrstdemo, tnight, waves, and woow.
WB53:Graphics - Raytracing programs generate absolutely stunning realistic looking planes, rockets, buildings..., and surreal images often consisting of highly polished spheres and objects. C-Light is the most powerful EASY-TO-USE of it's kind we have seen to date. This is easily better, and more full featured, than similar commercial programs costing in the hundreds of dollars. Also, sMovie - a full featured video text titler similar to ProVideo, Broadcast Titler. Great video scrolling, wipes, special effects, and more...
WB54:Printing - This disk contains several routines to help with the chore of printing. Includes Gothic - Finally a Banner printer for the PD! PrintStudio -a well implemented all-purpose printer-utility with a very comfortable graphic interface and many advanced features, Lila - with ease, print ASCII files to a PostScript printer, and many more.
WB55:Application - XCopyIII - a full featured disk copier, make backups of write protected disks. RoadRoute - find the quickest route from one city to another, highway description included, Diary - a diary program like "Dougy Howard M.D", Cal - a calendar program, Magman - a database tailored to maintain records on articles and publications.
WB57:Animation - This disk has several "Demo" style animations, Including, Blitter, Lolly, Sun5, vertigo, vortex, and xenmorph.
WB59:Business - contains a great, very full featured stock market technical analysis and tracking program, also an appointment calendar, and more.
WB61:Intermediate Utilities - Includes programs to help to drasticaly decrease flicker in interlace and hi-res modes (antiflick), an Atari-st emulator, an eprom programmer, turn your amiga into an eight channel digital data analyzer or ocilloscope, and more.
WB62:Midi Utilities - Several useful midi utilities including, programs to transfer to and from several music programs to midi, a midi sysex handler, a midi recorder with timebase, display midi info, file sequence player, and a few scores.
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WB66:Icons #2- Lot's of neat icons. Also, several wonderful programs that to let you create your own icons, modify and manipulate icons and info structures.
WB68:Music Utilities - several good utilities for the Amiga music enthusiast. Includes, Noisetracker - a great music creation program, Sonix2MOD - converts sonix to .mod files which then can be used by noisetracker, soundtraker, and MED, SpeakerSim - a speaker design tool demo, Wondersound is an additive harmonic instrument design tool with a separate envelope design window and 16 relative harmonic strength and phase angle controls.
WB69: Music - This disk has over 90 minutes of classical and modern electronic music for you Amiga.
WB70:Desk Top Pub - Atcp - transfer Macintosh screen fonts, Mac or IBM format .AFM metric files, to Amiga screen fonts and PPage .metric files. With this program open door to the libraries of Adobe and PostScript type!, Calendar - month templates in PS form, Post - a full featured post script file display and print utility.
WB71:C64 Emulation - The A64 Package is a complete, very powerful, Commodore 64 emulator.
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WB82:Animations - Four full length, well done "movie" style animations. Including, Coyote, JugglerII, GhostPool, and Mechanix. Two disk set, counts as one!
WB83: Computer Art - this disk has some of the best Amiga generated computer art that we have collected in the past 5 years.
WB85: Graphics - Contains several programs for manipulating 24 Bit color images (ham-e) and a rather nice Iff Image processing package.
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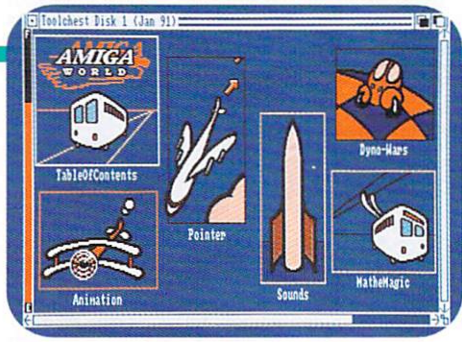
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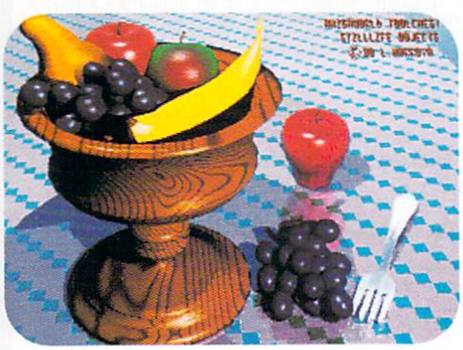
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The Last Word

Kudos, complaints, comments, concerns, and contributions from our readers.

Give Credit Where Due

I have long awaited the time when the Amiga would finally get the recognition it deserves for being the computer for desktop video. When the Video Toaster was introduced, I thought that my wait was over, but I guess I was wrong. It greatly disturbs me that NewTek is trying to hide the fact that the Toaster runs on an Amiga 2000. I see by the letter from Justin Gunn in the August issue that I am not the only one who is unhappy about this.

I disagree with Doug Barney's note saying that if NewTek's "cover-up" resulted in more sales of Amigas, he was all for it. I hope that enough Amiga users who want to see their machine get the recognition it's due will voice their opinion, so that maybe NewTek will "uncover" the fact that the A2000 runs the Toaster, thus giving the Amiga and Commodore some credit.

Jason Ivey
Monroe, Michigan

Documentation Woes

A friend and I want to get into Computer animation. Neither of us has a strong computer background, but I have at least some working knowledge of the computer, whereas my friend is an artist having no experience with a machine like the Amiga. Together, we spent what was an awful lot of money for us in a stock A2000, a hard disk and the Imagine software.

Having read your review of the software, I cannot stress enough how poor the initial tutorial booklet is. I understand an upgrade has been issued, but the upgrade with errata corrections wouldn't have been necessary if the people at Impulse had done their work properly and tested the tutorial.

Especially as a neophyte, it's disheartening to see the number of articles and reviews where the writer notes that a product's documentation is poor, and yet seems to forgive the software writers for this. I should think that getting wide market acceptability for a product would involve making things friendly enough so that people other than programmers and highly literate users would buy it. Poor instructions will only lead users like me to abandon the product out of frustration.

Bruce Mai
University City, Missouri

No Fun Intended

It was nice to read in your July editorial that you enjoy your correspondence with Jury Vladimirov. It was not so nice to turn to the back page and

"Mr. Barney, take a look in the mirror—you're seeing the Ugly American."

see you ridiculing his less-than-perfect English. If you tried to write a letter to him in Russian, you'd no doubt make more than three minor spelling mistakes. And he'd probably have the good taste not to make fun of your errors, much less publish them in a mass periodical. Mr. Barney, take a look in the mirror—you're seeing the ugly American.

David Duberman
Redwood City, California

A 900 Number, Yet!

I just mailed off a red-hot letter to the president of Oxxi, prompted by my learning that the company has now put its customer-service department on a 1-900 line! I'm writing this to *AmigaWorld* in the hope that some negative publicity might keep this odious practice from spreading to other companies.

By the way, Mr. Barney, I always read and enjoy your editorials, even when I don't agree with your stance. I find it positive that someone associated with the Amiga is not afraid to stir things up. I also appreciate *AmigaWorld*'s courage in printing negative reviews.

In closing, let me pass along a comeback that a friend of mine uses when someone comes up with the usual sneer about the Amiga being a game machine: "Well, if the ability to do gorgeous graphics blazingly fast makes it a game machine, then so be it." This erases the sneer pretty quick.

Dennis Schaefer
Los Angeles, California

The Human Side

I've been reading *AmigaWorld* for almost four years now. The reviews are good, and the tutorials are helpful. All the information you jam between the covers has good reason to be there most of the time. But while there is plenty of useful stuff in *AmigaWorld*, there is a void when it comes to the human side of the machine.

There are plenty of creative, intelligent people out there using the Amiga. That's why such a open-ended machine was developed. Why can't we see a little bit of coverage on the people doing the neat stuff? I'd like to see occasional articles, not on celebrities, but on everyday individuals who use the Amiga to develop wild or unusual applications. I'd like to hear how they do it technically and how they got started on their projects. With more awareness of the possibilities, the rest of us might find some new directions, too.

Wil Haslup
Carbondale, Illinois

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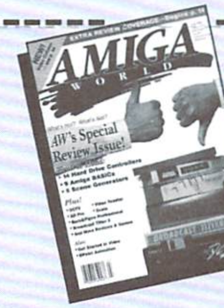
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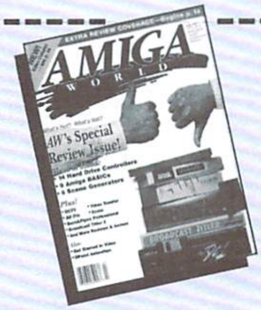
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